



National
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B-GJ-005-404/FP-000

MOVEMENT DOCTRINE FOR CANADIAN FORCES OPERATIONS

(MOVEMENT GENERAL)

Issued on Authority of the Chief of the Defence Staff

OPI: J4 Mov Doc

Apr 2001


Canada

NATIONAL DEFENCE HEADQUARTERS**FOREWORD**

12 April 2001

1. This manual, B-GJ-005-404/FP-014, Movement Doctrine for Canadian Forces Operations, is issued under the authority of the Chief of Defence Staff. It is one publication in the five-part series of staff manuals dealing with the movement of Canadian Forces (CF). This manual provides overall guidance in planning and executing the movement of CF by all modes. Mode specific detail is provided in the following supporting publications:

a. B-GL-303-010 FP-005 Vol 10, Part 5 dated 14 Sep 87 to be B-GJ-005-404 / FP-010, Movement Support Sea.

b. B-GL-303-010 FP-002 Vol 10, Part 2 dated 16 Jul 90 to be B-GJ-005-404 / FP-020, Movement Support Rail.

c. B-GG-005-014 / AF-030, Movement Volume 3 – Road dated June 2000 to be B-GJ-005-404 / FP-030, Movement Support Road.

d. B-GG-005-014 / AF-040, Movement Volume 4 – Air dated Oct 2000 to be B-GJ-005-404 / FP-040, Movement Support Air.

2. This publication is effective on receipt and replaces B-GL-010/FP-001, Staff Manuals, Volume 10, Movement of Forces (CFP 303 [10] [interim] dated 1992 and B-GG-005-004/AF-014 Movement Doctrine For Canadian Forces Operations Volume 1 dated 1996, which were never officially ratified. It is published on the Defence Wide Area Network (DWAN) on the J4 Movements (J4 Mov) Web Site and not in hard copy; any hard copy is to be downloaded from the DWAN.

3. Recommendations for change should be submitted to the Canadian Forces Joint Doctrine Board (CFDB) through the chain of command to J4 Mov for the attention of J4 Mov Doctrine.

PROCEDURE FOR AMENDMENTS

Insert latest amended pages; dispose of superseded pages in accordance with applicable orders.

Amended pages are annotated with the amendment number in the bottom left hand corner of the page e.g. AL 1 etc.

RECORD OF AMENDMENTS

AL No	Date	Date Entered	Signature

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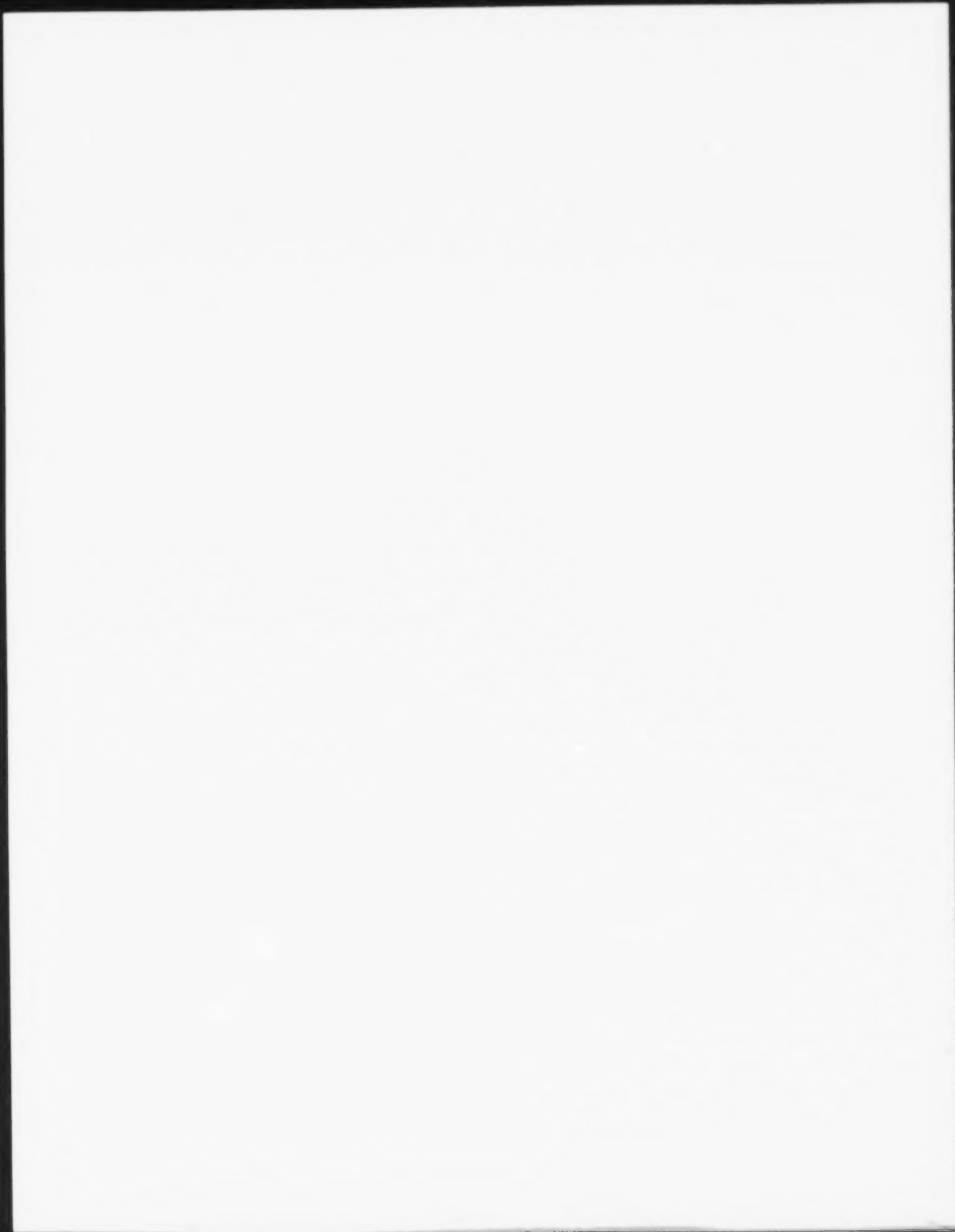
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CHAPTER 1

FUNDAMENTALS OF MOVEMENT

SECTION 1 - INTRODUCTION

AIM

1. The aim of this manual is to provide movement doctrine to Canadian Forces (CF) on deployed operations and exercises.

SCOPE

2. The key to efficient and effective movement is to understand the characteristics of the different modes of transport (MOT) available, and to use that knowledge to provide the best service, consistent with economy, while retaining the operational imperative, to the transport user. This manual is designed to:
 - a. serve as an introduction to movement in the CF;
 - b. describe the main characteristics of the various modes of transport (MOT);
 - c. give a doctrinal framework for movement planning, control and co-ordination; and
 - d. provide an introduction to NATO Transport and Movement, including Civil Emergency Planning (CEP).

APPLICATION

3. The doctrine expressed in this manual is national policy and therefore has primacy in any case of conflict with other manuals. A list of the main related publications is at Annex A.
4. Movement is also the subject of NATO Standardization Agreements (STANAGs), Allied Movement Publications (A Mov Ps), Quadripartite Standardization Agreements (QSTAGs) and Air Standardization Co-ordinating Committee (ASCC) directives, with which the CF comply in all cases of multi-national operations within the relevant alliances. A list of STANAGs, A Mov Ps, QSTAGs and ASCC documents related to movement is at Annex B. Chapter 5 of this Manual gives an introduction to the NATO alliance, this is intended to be illustrative rather than prescriptive. Canada may from time to time conduct operations within other alliances, or coalitions, where doctrine may need to be adapted to mutual benefit of the nations concerned. The Quadripartite Agreement (sometimes referred to as ABCA [America, Britain, Canada and Australia, plus New Zealand]) is not covered in the same manner. The Land Staff is currently the lead agent on the Quadripartite Alliance, through the directorate of Army Doctrine (DAD). In practical terms, as the 3 major participants of ABCA are also members of NATO, many of the movement QSTAGs are in fact copies of the corresponding STANAG.

ABBREVIATIONS AND DEFINITIONS

5. Abbreviations used are in accordance with A-AD-121-F01/JX-000, Manual of Abbreviations for the CF dated 1995. All words and terms used in this manual are in accordance with A-AD-121-AAP/JX-001, NATO Glossary of Military Terms and Definitions AAP-6 and with the Concise Oxford Dictionary. A glossary of frequently used terms and definitions related to movement is provided at the end of this manual.
6. This manual provides the National (NDHQ) Strategic overview and the term "Subordinate Command/s" is used throughout. Subordinate Command is a generic term, to embrace the Land Staff,

Air Staff, Maritime Staff, Area Headquarters, or CF Joint Headquarters (CF JHQ), 1 Canadian Air Division (1 CAD), Maritime Command Atlantic (MARLANT) Maritime Command Pacific (MARPAAC), Land Force Areas or Brigades.

LEGAL CONSIDERATIONS

7. This manual provides commanders and planners direction in Movement for operations, exercises and routine administration whether in Canada or abroad. In planning an operation, exercise or effecting routine administration, commanders at all levels must also take into account local regulations, Canadian laws, the laws of the host nation, if applicable, as well as the international laws that may affect the conduct of the operation/exercise. In case of uncertainty, the local representative of the Judge Advocate General should be consulted.

SECTION 2 - AN INTRODUCTION TO THE MOVEMENT ORGANIZATION AND MOVEMENT CONTROL

DEFINITION OF THE MOVEMENT ORGANIZATION

1. Modern military forces place extreme demands on transport resources in peace and war. The available transport assets at strategic/formation/unit level are seldom sufficient to handle large-scale moves in compressed time frames. Under these circumstances, maximum output must be obtained from the various modes of transport (MOT). This demands both efficient operation and effective use of available transport, while retaining the operational imperative.

2. Each MOT must be operated efficiently and safely so that maximum physical use is made of the space available on the individual carriers - trucks, trains aircraft, ships, barges, etc. This is the responsibility of the "mode operator". To be effective the use of the transport resource must also be efficient. This is the responsibility of what has become known as "the Movement Organization", sometimes known colloquially, and simply, as "Movements".

3. Thus, the role of the Movement Organization (Movements) is to ensure the efficient and effective movement of personnel and materiel to meet Canada's defence policy objectives.

MISSION OF THE MOVEMENTS ORGANIZATION

4. The mission of the Movement Organization (Movements) is to plan, co-ordinate and control the use of all MOT. In order to get the right things moved to the right place, at the right time, in the right condition, by the most economical means, while still satisfying the operational requirements of the user.

5. The term "most economical means", in this context, refers not only to the financial aspects, but also to the most efficient use of available transport resources.

DEFINITION OF MOVEMENT CONTROL

6. Movement Control (Mov Con) is defined as:

"The planning, routing, scheduling and control of personnel and cargo (materiel) movement over lines of communications (LOC/L of C); also an organization responsible for these functions."

7. At times, staff planners tend to confuse Mov Con and traffic control. The military police are normally made responsible for the supervision of traffic control which is defined as:

"The enforcement of traffic laws, traffic regulations and the external control of traffic movement over roads, routes or across country to meet the requirements of the military situation."

SECTION 3 - ORGANIZATIONS AND RELATIONSHIPS

MOVEMENT RELATIONSHIPS

1. The process of movement involves three main elements:
 - a. the Movement Organization;
 - b. military and civilian transport agencies; and
 - c. users.
2. In addition to the above there are many other organizations that may become involved in providing specialist support such as packaging, escorts, traffic control, accommodation, messing, quarantine, customs, medical and financial services.
3. The Movement Organization acts as the co-ordinator of, and interface between, all elements involved in movement and (in accordance with the stated operational requirement) co-ordinates and controls movement. Although Movement Staff (Mov Staff) at various levels of HQ are involved in mode selection they do not determine how the selected transport agency operates. The Mov Staff are responsible for ensuring that a movement order (Mov O), which may be multi-modal and involve more than one theatre of operations, is prepared and executed.
4. The responsibilities of the three main elements involved in movement are as follows:
 - a. The Movement Organization:
 - (1) acts as the medium through which all users make their transport requirements known;
 - (2) acts as the intermediary between the users and the transport agencies;
 - (3) decides the MOT necessary and advises on routings to implement the movement order or instruction (Mov O/ Mov Instr);
 - (4) ensures that there are facilities for loading and unloading the MOT;
 - (5) allocates traffic by route, amount and destination; and
 - (6) plans, co-ordinates and controls movement in support of the Operations Staff (Ops Staff).
 - b. Transport Agencies:
 - (1) decide on the method of operating its MOT; and
 - (2) provide advice to the Movement Organization on the operational aspects of their MOT.
 - c. Users:
 - (1) identify the movement requirement;
 - (2) stipulate any deadlines, restrictions and limitations; and

- (3) provide the priority for movement, normally in terms of desired order of arrival and the Required Delivery Date (RDD).

THE MOVEMENT ORGANIZATION

5. There are two basic elements in the Movement Organization; the staff (the Mov Staff at various levels of HQs, and the line (various Mov Pls and Mov Con units or detachments).

a. Staff (e.g. J4 Mov at NDHQ, CF JHQ Mov, Bde G4 Tn down to the Unit Embarkation Officer [UEO] in a unit). The staff aspects of the Movement Organization comprise:

- (1) movement planning;
- (2) allocating available strategic military transportation resources and defining the requirement when the contracting of civilian resources is required;
- (3) collecting and disseminating movement intelligence comprising detail such as route and terminal information;
- (4) issuing of movement orders (Mov O), regulations and instructions;
- (5) tasking the line Mov and Mov Con units; and
- (6) co-ordinating movement at all levels within the command.

b. Line (e.g. an Air Movements Squadron or 4 Canadian Forces Movement Control Unit [4 CFMCU]). The line aspects of the Movement Organization comprise:

- (1) advising the Mov Staff about the feasibility of plans, regulations and instructions;
- (2) implementing plans, regulations and instructions issued by the Mov Staff which may include the tasking of allocated transport resources;
- (3) issuing executive movement instructions (Mov Instr) to the user;
- (4) controlling movement at terminals, inter-modal transfer points and along routes on which movement is taking place;
- (5) monitoring movement as it takes place and maintaining records for statistical analysis; and
- (6) passing movement information to other elements of the Movement Organization.

SECTION 4 - MOVEMENT CO-ORDINATION AND CONTROL

MOVEMENT CO-ORDINATION

1. Movement co-ordination is a staff function that includes planning, scheduling, directing and co-ordinating movement. It is performed mainly at NDHQ and Task Force HQ levels, but may also be performed at any other level if so authorized.
2. Movement Staffs (Mov Staff) must keep fully aware of all aspects of the operational and movement plans, and any change in situations affecting either, to be in the best position to make decisions, and to co-ordinate the activities of users, transport agencies, and movement line units and detachments.

MOVEMENT CONTROL

3. Movement Control (Mov Con) is the line function that controls the execution of movement.
4. Mov Con is performed at all organizational levels from the strategic to tactical level. It is executed, on behalf of the Mov Staff, by a network of units and detachments, Mov Con detachments (at bases/stations, depots and field formations), Air Movements Squadrons (Air Mov Sqn) and Sections (Air Mov Sect). The Mov Con organization speaks with the authority of the Commander of the HQ directing the move.

MOVEMENT CONTROL UNITS

5. The number and location of Mov Con units, or detachments, depends on the following:
 - a. the number and location of facilities requiring their presence;
 - b. the intensity of movement;
 - c. the geography of the theatre of operations and the length, and condition, of the lines of communications (LOC/L of C); and
 - d. whether the LOC/L of C are operated entirely by the CF or in co-operation with allies.
6. Mov Con units or detachments are deployed to act on behalf of the Mov Staff at main terminal points in a movement system such as:
 - a. Airports of Embarkation/Disembarkation (APOE/D);
 - b. Seaports of Embarkation/Disembarkation (SPOE/D);
 - c. supply and ammunition depots;
 - d. railway stations, marshalling yards and railheads;
 - e. vehicle marshalling areas, road regulating points and major exchange points (XP);
 - f. inland waterway loading/unloading ports; and
 - g. assembly, mounting and staging bases.

MOVEMENT CONTROL FUNCTIONS

7. Mov Con functions are executed in all areas where movement originates, terminates, is transferred between transport agencies, or is diverted. Mov Con units or detachments may be required to perform the following functions:

- a. control movement to ensure that it is achieved by the means and in the priority designated in the movement orders (Mov O) or instructions (Mov Instr);
- b. establish and maintain liaison with installations such as depots and representatives of transport units in the area;
- c. maintain current information including locations of units, installations and depots, movement requirements, changes in movement capabilities and the status of the local transport situation;
- d. consolidate and arrange for transport services in connection with non-programmed movement requirements of local units, installations and depots;
- e. ensure efficient utilization of transport resources allocated by the Mov Staff;
- f. prepare plans, when required, for local employment of transport;
- g. effect re-consignment and diversion instructions as required by the appropriate authority;
- h. avoid congestion by regulating movement and by recommending to the Mov Staff the establishment of traffic priorities and/or restrictions or other appropriate actions;
- i. take necessary action upon receipt of:
 - (1) information regarding the arrival and dispatch of traffic, and
 - (2) requests for information concerning the movement of traffic, losses/discrepancies;
- j. advise local commanders and units on movement matters;
- k. where appropriate arrange for the provision of customs and assist in customs clearances, when required;
- l. ensure that shippers and carriers comply with the regulations concerning dangerous goods and other hazardous material;
- m. when required, arrange itineraries, reservations and the issue of the necessary travel documents for individuals and groups;
- n. ensure all movement is properly documented;
- o. ensure that all ordered security measures concerning movement of personnel and materiel are complied with; and
- p. determine the ability of consignees to accept shipments.

MOVEMENT CONTROL DETACHMENTS

8. Several factors determine the provision of Mov Con Detachments (Dets). For any given operation, the requirement will be scenario driven and may even vary for the deployment of similar forces, depending upon the methods of deployment utilized and the speed at which it occurs. The following factors should be considered when determining the requirement for a Mov Con Det:

- a. **Rate of Flow.** An increased rate of flow through a terminal will generally require a larger Mov Con Det, to ensure a constant level of control. For example a Mov Con Det consisting of two personnel, could control the flow through an APOE with a rate of one CC-130 flight every two hours during daylight hours. If the rate increased to one flight every hour, the Mov Con Det would likely require doubling to four personnel. Increasing the activity to a 24/7 operation would necessitate employing two shifts, again doubling the requirement for manpower within the Mov Con Det;
- b. **Mode of Transport (MOT).** The basic functions of a Mov Con Det at any terminal are the same regardless of the mode being used. The mode of transport (MOT) being used will affect the qualification requirements of the personnel chosen to man the Mov Con Det. Personnel assigned to Mov Con Dets must have a good working knowledge of the MOT that are used at that specific terminal;
- c. **Complexity of the Terminal Operation.** Should a unit arrive by both rail and road at an APOE, additional manpower is likely to be required to operate the railhead. If arrival is only by road, but non-related units will be arriving separately and departing simultaneously on combined flights, extra personnel may be required to control the relative priorities of the various units and to co-ordinate each flight; and
- d. **Duration of the Movement Activity.** At a specific terminal, with just two shifts working on a "12 hours on/12 hours off (12/12)" shift system, operating on a 24/7 basis, the maximum sustainable duration would be between one to three weeks. Should that period be extended, beyond three weeks, then a relief shift would be required to provide a break for the Mov Con Det personnel. Similarly, a single Mov Con Det, operating only normal working hours, but seven days a week, is likely to require relief after the third week.

SECTION 5 - PRINCIPLES OF MOVEMENT

GENERAL

1. Collectively the Movement Organization, the modes of transport (MOT), terminals, communications and routes operated are known as a "movement system". A movement system requires a set of rules, or principles, on which to base planning and staff work. Over the years four inter-related principles have evolved:
 - a. **Centralized Control.** Control of movement to be centralized at the highest practical level from which it can adequately be exercised;
 - b. **Regulation.** Movement to be regulated so as to flow evenly;
 - c. **Flexibility.** Movement to be fluid and flexible; and
 - d. **Maximum Utilization.** Maximum utilization to be made of carrying capacity.
2. The Principles of Movement are interdependent. Regulation of movement can only be effected through centralized control; fluid and flexible movement is best maintained through its regulation; and maximum utilization of carrying capacity can only be achieved by applying the previous three principles.

CENTRALIZED CONTROL

3. The success of military movement rests on the establishment of centralized control at the highest practical level. The multi-modal nature of the military movement system requires that it is co-ordinated as a whole. Attempts to operate components independently will invariably lead to an overall loss of efficiency. Factors such as the composition of the forces to be moved, the complexity of the move, security, communications requirements and the degree of control necessary will determine the level at which control can be exercised. This level must be high enough to ensure that the controlling authority has visibility over the whole movement programme and the operational situation.
4. The Movement Organization is not responsible for establishing movement requirements or setting priorities. This is the role of the Ops Staff. It is the responsibility of Mov Staff to support the Ops Staff by providing advice on the capabilities of the movement system and the most effective use of transport, to ensure that operational priorities are met.
5. Centralized control is achieved by adherence to the following tenets:
 - a. the Mov Staff responsible for a movement system must be situated at the level of command HQ from where they can co-ordinate the operation of transport agencies, and users, in such a manner to form an integrated system for that particular command;
 - b. the Mov Staff responsible for the planning and operation of a movement system must have access to all available means necessary to effect movement;
 - c. the Mov Staff must prevent independent, unauthorized use of components of a movement system (such as the unauthorized use of a controlled route to suit the needs of a unit not involved with a programmed move); and
 - d. Mov Con personnel must be employed wherever necessary to assist users and operators of transport agencies in the fulfilment of the movement plan.

REGULATION OF MOVEMENT

6. Movement must be planned and regulated, in accordance with the following tenets, to ensure that the desired rate of flow is maintained by keeping traffic moving without unnecessary congestion at critical points, such as mode transfer points, terminals or bottlenecks, and to make the best use of limited transport resources:

- a. an item, individual or unit, must not be dispatched if it cannot be accepted at its destination at a scheduled time of arrival. This may involve simple capacity difficulties or pre-positioning of handling equipment to ensure smooth reception. This procedure is known as "Can Consignor Accept (CCA)" and should be confirmed prior to all moves;
- b. priorities of movement must be established by the Ops Staff responsible for the activities of the users;
- c. requests for the use of transport agencies must be channelled through the Movement Organization, commencing at the lowest practical level in the Movement Organization authorized to execute the move i.e. the UEO or Mov Con Det;
- d. movement of traffic over a movement system must be programmed to the maximum possible extent commensurate with the need for flexibility;
- e. rules, regulations, and procedures governing the preparation, loading, documentation and unloading of traffic must be established jointly by Mov and Ops Staffs and transport agencies; and
- f. the traffic dispatched must not exceed the system's capacity (measured at the critical points).

FLUID AND FLEXIBLE

7. The basis of logistics movement is the authorized rate of consumption within a theatre. This routine maintenance is predictable and can be programmed on a daily basis. This allows the planning of a continuous and even flow, with stocks dispatched at regular intervals by the Movement Organization. A movement system must be flexible enough to respond to non-programmed movement e.g. surge requirements, changes in system capacity (which may be brought about through enemy action) or any other factor, that affects either the resources or the network over which that system operates. The movement planners must have flexible contingency plans, which allow for traffic to be switched from route to route, or even from one MOT to another, to maintain the even rate of flow.

8. Operators and users, at points of origin, en-route and at terminals must keep Mov Staff informed of any factors, which adversely affect or complement the fluidity or flexibility of movement.

MAXIMUM UTILIZATION

9. Maximum use of carrying capacity depends on accurate load planning, correct loading to the maximum permissible payload, minimization of turn-around times and avoidance of congestion along routes and at terminals.

10. Several other factors are to be considered to achieve maximum utilization:

- a. only authorized consignments to be moved;
- b. each MOT used to be organized so as to make the best use of its capabilities;

- c. trans-shipment and double-handling to be minimized;
- d. cross-hauling to be eliminated whenever possible;
- e. idle time to be kept to a minimum; and
- f. every effort to be made to eliminate damage and loss.

SECTION 6 - CHARACTERISTICS OF MODES OF TRANSPORT (MOT)

MODES

1. There are seven modes of transport (MOT):

- a. sea;
- b. rail;
- c. road;
- d. air;
- e. inland waterway;
- f. animals; and
- g. pipeline.

SEA

2. The main characteristic and advantage of sea transport is its large carrying capacity and endurance. Its use, within CF, for moving military personnel has been essentially replaced by wide-bodied aircraft, however sea lift is ideally suited to move large amounts of military equipment and materiel when trans-oceanic movement is required. Its principal limitations are its vulnerability, particularly in ports or at anchorage, and its slow speed. However, because of its ability to move huge tonnages, it remains the most economical and is therefore the principal MOT for overseas movement of materiel. It must be remembered that the availability and security of shipping may be limited during the early stages of a conflict, although generally only within the operational theatre boundary.

3. Some ships are designed to carry specific cargo and to load and unload in a particular way. Modifying the use of such a ship may involve long and expensive alteration and will not normally be practical. The modern, large capacity roll-on/roll-off (RORO) type ships are favoured for the deployment of forces as they can normally handle a mixed cargo of military equipment in a speedy and, if necessary, ready to operate "tactical loading" configuration. The demand for ROROs in large combined operations will, in most cases, far outweigh the availability; it is likely that some conventional lift on/lift off, sometimes referred to as "load on/load off" (LOLO) shipping will be required to move the complete force.

4. The use of sea transport is limited by the suitability and availability of port and terminal facilities at both loading and destination points. A RORO will normally require the correct ramps, or dock height for integral ramps, however the requirement to handle large numbers of International Standards Organization (ISO) containers (sea containers) is normally the most significant constraint when selecting a suitable port. When sea container handling is the most significant constraint, sea container handling equipment (CHE) and marshalling areas with a good, accessible surface distribution system must be available. If time and resources permit it may be possible to improve facilities through the use of portable military CHE, ships' equipment, lighters and barges. Congestion, both within the port, when loading or off-loading, and around the port, effecting onward distribution, may be a significant constraining factors in large-scale operations.

5. The need for customs and immigration clearances both at final destinations, and en route if required, must be fully examined.

6. Shipping is vulnerable to interdiction and its use may be governed by the availability of escorts, although this would generally be limited to involvement in a high intensity conflict.

7. Ships are relatively slow. The average speed for cargo ships is between 15 and 20 knots and for passenger ships between 16 and 22 knots. Adverse weather conditions may affect a ship's ability to meet a tight schedule. This is particularly true if convoy security is applied when speeds may be reduced significantly to allow for slow vessels and naval escort tactics. Further detail on Sea movement is in B-GL-303-010/FP-005 Vol 10 Part 5 (scheduled to be re-issued as B-GJ-005-404/FP-010 Mov Support - Sea).

RAIL

8. Railways are unrivalled in their capacity to move heavy and bulky loads, over long distances, overland, at relatively high speeds. The extent of this capacity is dependent upon such factors as rail gauges, passing facilities, and the availability of motive power and rolling stock. Special loads, such as tanks, will require scarce specialized rolling stock which must be identified well in advance of movement to allow for its positioning. Time "slots" on the rail network system need to be identified well in advance as unplanned movement is not possible. However, in a critical situation, short notice rail requirements may be successfully met provided some warning has been given and close liaison has been maintained between the components of the Movement Organization.

9. A rail move may be required to cross national boundaries and therefore onto differing national and regional networks which would normally have separate regulations and standards (e.g. track width, bridge and platform heights, speed limits etc). Under these circumstances, load planning must meet the most restrictive regulations, and standards, of the region, or nation, through which the train will pass.

10. Railways are particularly useful for delivering combined arms packages that are required to be completely operational, at short notice, upon arrival at the destination.

11. The fact that rail movement needs a permanent way, rail tracks, is in itself a limiting characteristic. Remote and rugged areas of Canada, Europe and the third world are often not served by rail and the laying of new track is both expensive and time consuming.

12. While railways are vulnerable to interdiction they are also difficult to paralyse completely. Damage to tracks can be repaired with relative ease. Damage to more vital areas such as marshalling yards, locomotive repair shops and bridges may delay railway transport operations. The time taken to repair such facilities, and to construct new track, underlines the most serious deficiency of rail movement - the lack of flexibility. However, it should be noted that rail networks with redundant tracks retain a higher degree of flexibility than single line networks in close country. The ability to augment rail repair teams will shorten repair time and increase flexibility. Further detail on Rail Movement is in B-GL-303-010/FP-002 Vol 10 Part 2 (scheduled to be re-issued as B-GJ-005-404/FP-020 Mov Support - Rail).

ROAD

13. The chief characteristic of road transportation is flexibility. Generally there are few destinations in either developed or undeveloped countries that cannot be reached through the existing road network, or through the ability of road vehicles to negotiate all but the most unfavourable terrain. This mode will often, at the outset of operations in undeveloped countries, be the only one suitable for the movement of materiel and personnel, albeit further consideration must be applied if operating in monsoon affected countries. In terms of its ability to rapidly resume operations, road transportation is the mode least affected by enemy interdiction.

14. Road transport is not normally a viable alternative to sea or rail transport for sustained operations over long distances. It is primarily a distribution means and, as an inter-modal link, plays a vital part in the overall movement system. Generally, road transport is most essential at the initial and final links of a movement system.

15. The major limitations affecting road transport are:
- the poor carrying capacity in relation to the manpower required to operate and support it;
 - the availability and endurance of trained and experienced drivers;
 - the extensive logistic and administrative facilities and effort needed to support a road transport operation over long distances and extended periods;
 - the possible difficulties in obtaining cross border clearances when required; and
 - road capacity and condition.
16. Developments in technology have improved the capacity and turnaround times of road vehicles. The dismountable load platform, palletised loading system (PLS), in military use, has revolutionised the road resupply system from depots to formations and units in the forward areas. The capacity achieved, although much improved, still suffers in comparison to rail for long haul operations. Further detail on Road Movement is in B-GG-005-014/AF-030 Mov Vol 3 – Road (to be re-titled B-GJ-005-404/FP-030 Mov Support – Road).

AIR

17. The speed and range of fixed wing transport aircraft enable the rapid deployment of a force over long distances. In fact the longer the distance and tighter the time frame the more attractive the use of air transport becomes. There are few occasions when deployment of personnel over long distances, either overseas or within Canada, would be considered by any other means. However, availability of aircraft and load carrying capacity can be limitations. Throughout this manual you will encounter the terms "airlift" and "air transport". "Air Transport" generally relates to either a type of aircraft (i.e. a transport aircraft) or its employment in tactical level operations whereas "Airlift" is applied to strategic operations. However "air transport" aircraft and resources are used to conduct an "Airlift".
18. Air transport is expensive, in both financial operating costs and in terms of the large number of highly trained personnel required to operate it, in comparison to the load carried. These aspects must be considered when maintaining large forces, during sustained operations, over extended LOC/L of C.
19. The flexibility of military air transport allows it to be employed both strategically and operationally within the theatre of operation. However, using scarce resources for operational tasks will obviously reduce the available airlift for strategic tasks; therefore a balance will need to be achieved.
20. The following factors should be considered when planning the use of air transport:
- the degree of air superiority, particularly near to, or in the theatre of operations, can impact greatly on the use of this mode;
 - the weather conditions may have a particular influence over the full exploitation of aircraft capabilities;
 - load characteristics, specifically its nature (dangerous goods), weight and dimensions are particular limiting factors in the consideration of materiel acceptance for this mode;
 - the need for loading aids, including sophisticated material handling equipment (MHE);
 - the availability of suitable airfields, particularly in the operational theatre, may limit the potential of air transport;

- f. the operating and maintenance costs are high in relation to other MOT;
- g. the limited availability of CF military, and other, strategic airlift resources;
- h. the limited availability and endurance of air crew; and
- i. over flight agreements from other nations may not always be available and may cause considerable routing problems with a consequent loss of efficiency.

21. The CF retains the capability to deliver stores and personnel by means of aerial delivery. This may be used as integral support to airborne/parachute operations or in conventional operations when airfields and helicopter landing zones are unavailable. Its employment would normally be restricted to non-routine emergency relief or special operations. Its planning is therefore unlikely to be part of a movement plan as such. Further detail on Air Movement is in B-GG-005-014/AF-040 Mov Vol 4 - Air to be re-titled B-GJ-005-404/FP-040 Mov Support - Air.

PORTERS/PACK ANIMALS

22. The use of porters or pack animal transport should never be ruled out, particularly where rugged terrain is encountered. Although limited in capacity, it is a time proven means to transport relatively small loads over both short or long distances in the roughest conditions. Imagination and adaptability of local resources (along with availability of forage and veterinary support for animals) are the keys to the successful use of porters/animal transport. This MOT is not "strategic" and is not addressed further in this manual.

INLAND WATER TRANSPORT (IWT)

23. IWT can be operated on rivers, canals, inland seas, lakes, inter-island or limited coastal routes and ship to shore discharge. It is particularly suited to the carriage of heavy and bulky equipment, stores, fuel and bulk non-perishable food when time in transit is not of overriding importance. Many countries have natural IWT routes, based on rivers and lakes, that provide the only viable means of bulk transport. Many industrialized countries also have good IWT infrastructures that should not be overlooked in movement planning.

24. IWT tends to be slow, but it is reliable, simple to operate and can be invaluable as a means of maintaining a regulated, even flow of supplies. Limiting factors in the use of IWT are its inflexibility in deviating from established routes and its vulnerability to enemy action, particularly to bridges, lock systems and dams. IWT operations on inter-island and coastal routes can also be affected by weather conditions and escorts may be required. This MOT is not addressed further in this manual.

PIPELINES

25. Extensive networks of pipelines exist in both Canada and Europe. They are capable of moving large quantities of bulk liquid cheaply and reasonably fast. They are particularly vulnerable at any point where the pipe is above ground and at pumping stations. Pipelines lack flexibility and are generally designed for a single product, normally fluid or gas although solids in suspension can be moved. As Mov Staff are rarely involved in planning the use of pipelines, this mode will not be addressed in this manual. If further information is required on pipelines in general or on a particular network formation logistics staff should be approached.

SECTION 7 - TERMINAL MOVEMENT CONTROL OPERATIONS

TERMINAL FUNCTIONS

1. The term "terminal" may be open to misinterpretation among those unfamiliar with its usage. Any point at which a mode of transport (MOT) medium starts, changes or ends may require a formal terminal installation. These may more commonly be addressed by their functional role. The following all have terminal functions:

- a. airports of embarkation or disembarkation (APOE/APOD);
- b. sea ports of embarkation or disembarkation (SPOE/SPOD) and/or beach heads;
- c. railheads;
- d. road transport exchange points; and
- e. supply and ammunition depots and installations.

TERMINAL OPERATING PRINCIPLES

2. The principles by which terminal organizations operate are as follows:

- a. **One Commander.** All units and agencies involved in the process of handling transport and clearing cargo should be placed under one commander;
- b. **Movement Responsibilities.** Movement Control (Mov Con) operations within a terminal should be executed under the direction of only one superior headquarters;
- c. **Terminal Organization.** Terminal organizations invariably include a variety of specialist functions and units. Units or specialists can be added or removed as the task develops; and
- d. **Participation in Planning.** To ensure optimum efficiency representatives from appropriate military and civilian organizations, as required, should be involved in planning terminal operations.

FACTORS AFFECTING TERMINAL MOVEMENT CONTROL OPERATIONS

3. The three main conditions under which a terminal Mov Con unit/detachment may operate are:

- a. during the deployment, sustainment and redeployment of forces when specialist military movement assets and expertise are required;
- b. supplementing an existing civilian transport agency where they are unable to cope with the military requirement unaided; and
- c. operating in an independent role where no usable infrastructure exists.

4. The factors affecting terminal Mov Con operations include the following:

- a. the quantity, including weight and volume of cargo and its nature;
- b. the transport agencies to be used;

- c. the composition of the terminal organization and its resources;
- d. the nature of the operation;
- e. the method of cargo clearance;
- f. the availability of civilian facilities and support; and
- g. security as dictated by the operational situation.

TYPES OF TERMINAL

5. There are four basic types of terminal:

- a. sea;
- b. road;
- c. rail; and
- d. air.

SEA TERMINAL OPERATIONS

6. Sea terminal operations may be conducted from large ports, with deep water complexes containing several wharves, anchorage areas, shore-based cranes, cargo sorting and storage areas, dry docking facilities and rail sidings, or from smaller shallow draught harbours, with few berths and minimum cargo handling, storage and clearance facilities.

7. Due to the large quantities of vehicles and equipment that can be carried by ships, a large parking area is required close to a sea terminal. This facilitates both load preparation prior to embarkation, and the reconstitution of unit convoys, following disembarkation.

8. A major factor in sea terminal operations is security, particularly as most modern ports cover vast areas. The task of security should never be underestimated and the Ops Staff will have to task appropriate resources.

ROAD TERMINAL OPERATIONS

9. Large scale road transport operations normally require the provision of terminal facilities and operations, such as:

- a. at the beginning and end of line haul operations, where the consolidation of cargo or breakdown for feeder services is required; and
- b. when planned trans-shipment is necessary between separate elements operating the line haul system. These may be called exchange points (XP) and may involve transfer of loads, load platforms (including sea containers) or complete vehicles operating on the different transport loops.

10. The organization of road transport terminals will vary according to the scale of operation being conducted. Generally, the activities that will be part of a major road terminal are:

- a. Mov Con including the regulation of traffic flow (convoy planning) onto the military route system;

- b. reception and dispatch of materiel;
 - c. driver and/or vehicle changes, rest and maintenance including feeding and fuel; and
 - d. the organization of temporary storage, freight and vehicle control systems.
11. The road transport loading and unloading facilities incorporated within the other types of terminals or depots do not constitute road transport terminals as such; they are in effect a constituent part of that other type of terminal.

RAIL TERMINAL OPERATIONS

12. Movement by rail can be an effective means of transporting personnel, large amounts of materiel and vehicles over long distances. A relatively large marshalling area is required to hold and disperse "train loads" prior to embarkation, and following disembarkation. The rail terminals forming part of the rail LOC/L of C can only operate effectively when sufficient trained personnel are available to perform the railway operating tasks within those terminals. This will normally be a function of the commercial railway company assisted by military staff. Loading and unloading of trains is the responsibility of the military and will require the allocation of sufficient personnel and MHE to effect movement through the terminal.

13. Exchange sidings, marshalling yards and regulating stations are control and classification areas prior to onward movement, they should not be considered as rail terminals.

AIR TERMINAL OPERATIONS

14. The activities directly concerning the operation of aircraft to and from an Air terminal may be conducted by existing military units or by appropriate civilian agencies. Such activities may be conducted by an Air Movements Squadron (Air Mov Sqn), Air Movements Section (Air Mov Sect), Mobile Air Movements Section (MAMS), or by a Base/Wing Traffic Section. In most cases, when operating as part of a National Strategic Plan, they will be responsible to J4 Mov Ops for movement co-ordination. Movement information is to be provided to J4 Mov either through a Liaison Officer or direct as the situation dictates. Normal command affiliations for all other matters will not be affected by this arrangement.

15. An Airlift Control Element (ALCE), including MAMS, may be deployed to co-ordinate those activities directly concerning the operation of aircraft to and from air terminals, to meet in-theatre requirements. While the structure of terminal elements will be determined by the size of the terminal, the type of aircraft and the throughput, it must include personnel trained in the loading and unloading of Canadian and other military or contracted aircraft.

16. In underdeveloped countries, or certain tactical situations, it may be necessary to move units, stores and equipment from the APOD to their operational area by helicopter or tactical fixed wing aircraft. In this case, a forward airhead may need to be established and manned by appropriately trained personnel. The operation of this airhead could be under command of the Task Force Commander. He will be assisted by the temporary attachment of a qualified Air Liaison Officer to his staff.

ASSOCIATED MANUALS AND DOCUMENTS

CODE	TITLE
B-GJ-005-300/FP-000	Canadian Forces Operations Manual
B-GJ-005-500/FP-000	Force Employment
B-GG-005-004/AF-013 to be B-GJ-005-400/FP-000	Joint Logistics
A-LM-158-004/AG-001	Movement of Material
ISBN 92-9171-403-8	IATA (English)
ISBN 92-9171-403-8	IATA (French)
Doc 9284-AN/905	ICAO (English)
Doc 9284-AN/905	ICAO (French)
ISBN 1-895832-04-7	TDG Regulations (English)
ISBN 1-895832-04-7	TDG Regulations (French)
ISBN 92-1-139035-4	UN Tpt of Dangerous Goods (Orange Book)
ISBN 92-801-5090-1	IMDG (Sea) 2000
A-LM-117-001/FP-001	Transportation of Dangerous Goods By Canadian Forces Aircraft (English)
A-LM-117-001/FP-002	Transportation of Dangerous Goods By Canadian Forces Aircraft (French)
ISBN 1-57943-960-8	CFR 49 Series U.S. (Equiv to TDG Regs)
	North American Emergency Response Guidebook (English)
	North American Emergency Response Guidebook (French)
C-02-040-003/TP-000	Handbook for Radioactive Material
C-02-040-010/MB-003	Driver's Manual for Dangerous Goods

STANDARDISATION AGREEMENTS

NATO STANDARDISATION AGREEMENTS (STANAG)

AIR

- 3345 - Data/Forms for Planning Air Movements
- 3462 - Availability of Weight and Balance Requirements and Loading Criteria for Fixed Wing Aircraft
- 3465 - Safety Emergency and Signalling Procedures for Military Air Movement - Fixed Wing Aircraft
- 3466 - Responsibility of Air Transport Units and User Units in the Loading and Unloading of Transport Aircraft in Tactical Air Transport Operations
- 3543 - Air Transport Cargo/Passenger Handling Systems - Request for Information
- 3548 - Tie-down Fittings on Air Transport and Airdropped Equipment and Cargo Carried Internally by Fixed Wing Aircraft
- 3570 - Drop Zones and Extraction Zones - Criteria and Markings
- 3601 - Criteria for Selection and Marking of Landing Zones for Fixed Wing Aircraft
- 3619 - Planning Procedures for Small Scale Tactical Air Transport Operations
- 3739 - Combined Air Terminal Operations
- 3740 - Procedures for Tracing Air Transported Baggage and Missing Air Transported Cargo
- 3767 - Exchange of Data on Load Capabilities of Transport Aircraft
- 3770 - Air Transport Baggage Tags
- 3771 - Ground Security Measures Against Aircraft Sabotage/Hijacking
- 3774 - Control Procedures for Pallets and Associated Restraint Equipment used in Combined Air Transport Operations
- 3775 - Air Movement and In -Transit Storage of Cargo Requiring Controlled Temperature Conditions
- 3854 - Policies and Procedures Governing the Air Transportation of Dangerous Cargo
- 3998 - NATO Air Transport Policies and Procedures - ATP53
- 7057 - Exchange of Data on Multi-Modal Documentation of Cargo

SURFACE

- 2023 - Marking of Military Cargo for International Movement by all International Means of Transport
- 2152 - Rail Loading Ramps (will be part of AMovP-4 once ratified)
- 2158 - Identification of Military Trains (will be part of AMovP-4 once ratified)
- 2173 - Regulations for the Securing of Military Tracked and Wheeled Vehicles on Railway Wagons (will be part of AMovP-4 once ratified)
- 2175 - Classification and Designation of Flat Wagons Suitable for Transporting Military Equipment (will be part of AMovP-4 once ratified)
- 2182 - Allied Joint Logistic Doctrine (AJP-4)
- 2832 - Restrictions for the Transport of Military Equipment by Rail on European Railway (will be part of AMovP-4 once ratified)
- 2890 - Regulations for Safety in the Transport of Ammunition and Explosives by Military Train
- 2943 - Regulations for the Lateral or End-on Loading and Unloading of Wheeled or Tracked Military Equipment Transported on Railway (will be part of AMovP-4 once ratified)

ALLIED MOVEMENT PUBLICATIONS (A Mov P)

- | | |
|-------------|---|
| A Mov P - 1 | Regulations and Procedures for Road Movements and Identification of Movement Control and Traffic Control Personnel and Agencies |
| A Mov P - 2 | Surface Frontier Crossings |
| A Mov P - 3 | Movement and Transport Documents and Glossary of Terms and Definitions |
| A Mov P - 4 | Technical Aspects of the Transport of Military Materials by Road (to be ratified) |

AMERICA-BRITAIN-CANADA-AUSTRALIA (ABCA) QUADRIPARTITE STANDARDISATION AGREEMENTS (QSTAG)

GENERAL

- QSTAG 165 - Movements Principles, Policies, and Duties
- QSTAG 190 - Movements and Transport Documents used for Movements by Ship
- QSTAG 328 - Slings and Tie-down Provisions for Lifting and Tying Down Military Equipment
- QSTAG 507 - Military Routes and Route/Road Networks
- QSTAG 512 - Marking of Military Vehicles
- QSTAG 520 - Operation Orders, Tables and Graphs for Road Movement

ANNEX B
TO CHAPTER 1

- QSTAG 539 - Regulations for Military Motor Vehicle Movement by Road
- QSTAG 540 - Identification of Movement Control and Traffic Control Personnel and Agencies
- QSTAG 562 - Surface Transport Request and Reply to Surface Transport Request
- QSTAG 590 - Marking of Military Cargo for International Movement by all International Means of Transport
- QSTAG 591 - Basic Military Road Traffic Regulations
- QSTAG 592 - Forecast Movement Requirements - Rail, Road and Inland Waterways
- QSTAG 627 - Materials Handling in the Field
- QSTAG 628 - Handling Aids
- QSTAG 660 - Movement Control
- QSTAG 742 - Marking of Hazardous Areas and Routes Through Them
- QSTAG 785 - ABCA Armies Material Issue and Movement Priority System (ABCA MIMPS)
- QSTAG 829 - ABCA Armies Procedures for Bar Coding
- QSTAG 879 - Materials Handling Equipment
- QSTAG 880 - Military Pallets, Packages and Containers
- QSTAG 1152 - Bar Code Symbolology
- QSTAG 1154 - Standard Markings for Shipment and Storage
- QSTAG 1156 - Requirements for Reusable Containers
- QSTAG 2020 - Coalition Logistics Planning Guide

AIR STANDARDISATION COORDINATING COMMITTEE (ASCC) AIR STANDARDS

GENERAL

- AIR STD 44/9 - Handling and Documentation of Dangerous Cargo for Air Transportation
- AIR STD 44/10 - Data/Forms for Planning Air Movements
- AIR STD 44/13 - Drop Zones: Visual Markings
- AIR STD 44/16 - Transport Aircraft Loading Data
- AIR STD 44/18 - Responsibilities of Air Transport Units, and Air Transported (User) Units, for Air Movement in Combined Operations
- AIR STD 44/22 - Exchange of Information - Ground Handling Capabilities for Transport Aircraft

ANNEX B
TO CHAPTER 1

- AIR STD 44/35 - Drop Zones and Extraction Zones: Selection, Dimension and Information Checklists
- AIR STD 44/38 - Wartime Air Movement Priorities System
- AIR STD 44/41 - Combined Air Terminal Operations
- AIR STD 44/43 - Air Transport Baggage Tags
- AIR STD 44/45 - Procedures for Tracing Air Baggage and Missing Air Cargo
- AIR STD 44/47 - Identification and Control of Aircraft Pallets and Associated Restraint Equipment during Combined Airlift Operations
- AIR STD 44/48 - Ground Security Procedures Against Hijacking of Air Transport Aircraft
- AIR STD 44/49 - Movement, Handling and In-Transit Storage of Cargo requiring Temperature Controlled Conditions
- ADV PUB 44/51 - Formats for Requesting and Answering Requests for Air Transport
- AIR STD 44/52 - Transportation of Troops on Aircraft Transporting Hazardous Cargo
- AIR STD 44/53 - Operational Carriage by Helicopter of Ammunition and Fuel
- AIR STD 44/56 - Dimensional Features for Stretcher (Litter) Support and Retention by the Handles
- ADV PUB 44/57 - Multi-Modal Documentation of Cargo
- AIR STD 44/58 - Planning Procedures for Tactical Air Transport Operations

CHAPTER 2

CONCEPT OF MOVEMENT

SECTION 1 - FORCE DEPLOYMENT

TERMINOLOGY

1. In the past, procedures relating to movement, transportation, and mobility were developed which reflected the realities of the Cold War. Since the international security environment has changed many of those procedures have been revised to fit the demands of new strategy. Most general definitions are contained in the Glossary at the back of this manual, however, those definitions most relevant to this chapter are reiterated here:

- a. **Mobility.** A quality or capability of military forces which permits them to move from place to place;
- b. **Movement.** Movement is the activity involved in the change in location of personnel, equipment or stocks as part of a military operation. Movement requires the supporting capabilities of mobility, transportation, infrastructure, Movement Control (Mov Con), and support functions;
- c. **Transportation.** Transportation is the means of conveyance to move forces, equipment, personnel, and stocks and includes the requisite material handling equipment (MHE);
- d. **Strategic Mobility.** The generally accepted (MC 319/1) definition of Strategic mobility is "the capability to move forces and their associated logistic support quickly and effectively over long distances. This can be between theatres (inter-theatre) or between regions (inter-regional)", however political/military influence rather than distance is actually the essential criteria to any definition of strategic; and
- e. **Operational Mobility.** Operational Mobility is generally the capability to move forces and their associated logistic support quickly and effectively within regions (intra-regional). It also embraces the capability to concentrate regional forces against the major enemy thrust and to counter - concentrate operational reserves.

CONCEPT FOR DEPLOYING A TASK FORCE

2. The CF requires the strategic capability to deploy Task Forces to overseas theatres of operations from Canada and to establish a strategic movement system capable of supporting these operations. The operation of an efficient strategic movement system and development of effective lines of communication (LOC/L of C) is an essential prerequisite for the successful projection and sustainment of Task Forces on operations.

3. It is not possible to predict the exact operational environment, or the location of future operations, therefore a flexible strategic movement system is required. The LOC/L of C to the theatre may include water, land and air routes, together with the necessary terminal, trans-shipment, route maintenance and transportation agencies. The possible climatic conditions, terrain and quality of infrastructure (particularly airfields and harbours) of potential areas for deployment, are major factors affecting strategic deployments. Any deviations from the following procedures must be clearly identified in the National Movement Order issued by NDHQ J4 Mov.

4. Figure 1 shows the various bases through which a Task Force may move when deploying from Canada to an overseas Area of Operation (AO). This diagram depicts the worst case scenario when, due to an extended LOC/L of C within Canada, it would be necessary to employ Assembly, Staging and

Mounting Bases. The requirement to provide these bases will depend on the particular situation prevailing at the time of a specific operation. It may be possible to dispense with all of these bases and mount directly from the home location to the Ports of Embarkation (POE). Also depicted is the division of responsibilities for movement along the LOC/L of C. NDHQ controls the move from the POE to arrival at the Port of Disembarkation (POD) in the AO.

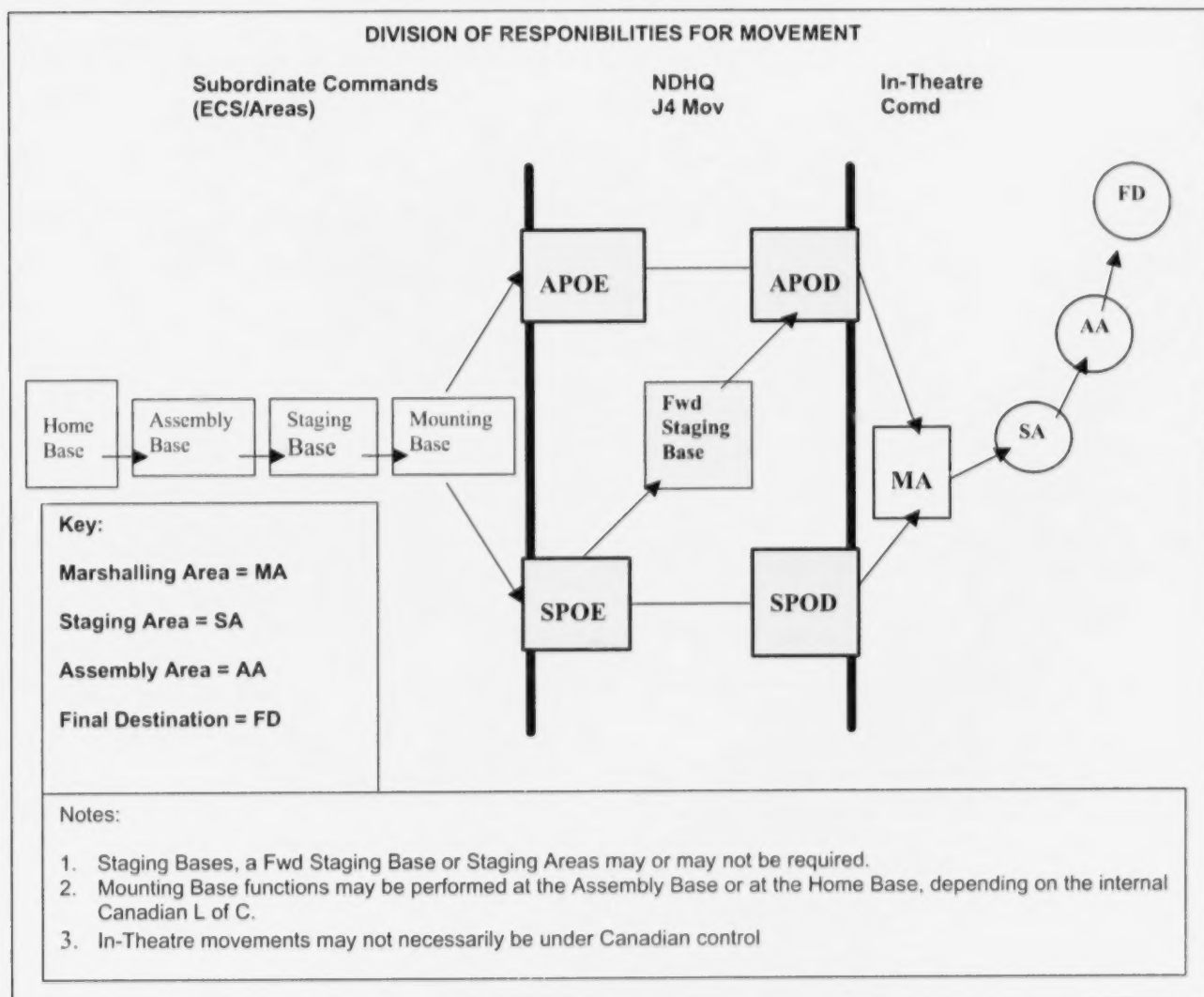


Figure 2-1 Division of Responsibilities for Movement

5. Strategic movement is generally the movement, which takes place between Canadian POEs and the PODs in the AO; likewise operational movement generally takes place within the AO. The strategic national responsibilities for Mov Con commence at the POE (although immediately following departure from Mounting Bases deploying forces become "Under Command for Movement" of NDHQ J4 Mov, duties and responsibilities of NDHQ J4 Mov are at Annex A), and will end at the POD. NDHQ retains

command while the Task Force is in transit. On arrival at the POD, control (transfer of authority [TOA]) may pass to the deployed Task Force Commander (or sometime thereafter). 4 CFMCU Mov Con Dets, general duties and responsibilities for Mov Con Dets are at Annex K, will normally be responsible for disembarking the Task Force at the PODs. The "in-theatre Movements Organization will be responsible for the subsequent onward movement of the Task Force. This "in theatre Movement Organization" may be part of the deploying CF Task Force, or provided by allies, other options are being investigated by the Joint Support Group (JSG) Project. However until the JSG Project is complete it will be generically referred to in this manual as the "in Theatre Mov Con Organization". Detailed arrangements are described in the following paragraphs.

MOVEMENT WITHIN CANADA

6. Movement from home locations to the POE is a Subordinate Command/Environmental Chiefs of Staff (ECS) responsibility that is controlled by the Base/Area/Bde/Wing headquarters Mov Staff, and co-ordinated at the Subordinate Command level, general duties and responsibilities of a Subordinate Command are at Annex B. Co-ordination at National level will only be required to ensure a regulated flow into and out of POE.

MOVEMENT TO ASSEMBLY BASES

7. Movement of individuals, and booking of transport and support facilities, is the responsibility of the parent Base/Wing/ GS Bn Movement personnel (details of the responsibilities of Base/Wing/GS Bn Movement personnel are at Annex E). Movement must be co-ordinated with the Unit Embarkation Officers (UEOs), or the Task Force Movement Officer (TFMO), when the movement of a group of units (or Task Force) is involved. The responsibilities of UEOs are provided at Annex F and the TFMO at Annex D. National assistance to meet shortfalls in transport may be requested through J4 Mov and will normally be allocated if available. Base/Wing/GS Bn Movement personnel are normally responsible for the movement of materiel from contractors to depots, however, if the volume of movement is large enough, national control may be imposed.

FACILITIES REQUIRED IN AN ASSEMBLY BASE

8. As the Task Force components assemble, from perhaps a number of Home Bases, the Assembly Base provides administrative support functions and may include the following facilities:

- a. transit accommodation for the reception and initial administrative support of units and individuals before movement commences. Administrative support includes, documentation, transportation, rations, medical, postal, fuel, formerly petroleum, oil and lubricants (POL), maintenance repair, supply and Military Police (MP);
- b. a secure area in which personnel receive initial briefings on their individual roles in the operation.
- c. areas and facilities suitable for individual and collective training and rehearsal; and
- d. comprehensive communications for control, including movement, of the Task Force as it commences deployment.

MOVEMENT TO MOUNTING BASES

9. Parent HQs/Subordinate Commands are responsible for the movement of forces to Mounting Bases.

10. Depending on the proximity of the Assembly Base to the POEs, Mounting Base activities may be carried out at the Assembly Bases. A Mounting Base is designed to accommodate the transition from Assembly Base to POEs. This is achieved by enabling the parent Base/Wing/GS Bn movement

personnel, in conjunction with the UEOs/TFMO, to implement the detailed resource allocation and control procedures essential to the efficient embarkation of the Task Force. Final actions in the Mounting Base enable the parent Base/Wing/GS Bn movement personnel to confirm that unit personnel and materiel are correctly prepared for movement and presentation to the POE.

FACILITIES REQUIRED IN A MOUNTING BASE

11. The Mounting Base normally provides administrative support functions and may include the following facilities:

- a. transit accommodation for the reception and administrative support of units before onward movement. Administrative support includes transportation, rations, medical, postal, fuel, formerly petroleum, oil and lubricants (POL), maintenance repair, supply and Military Police (MP);
- b. a secure area in which personnel may receive final briefings on their individual roles for the operation. The Mounting Base may include an area suitable for training and rehearsal if so required;
- c. comprehensive communications for control, including movement, of the Task Force; and
- d. provide easy access to the POEs for the smooth embarkation of personnel vehicles and equipment.

MOVEMENT TO THE PORT OF EMBARKATION (POE)

12. Immediately following departure from Mounting Bases deploying forces become "Under Command for Movement" of NDHQ (J4 Mov), until arrival at PODs in the AO, although transport from the Mounting Base to the POE is normally still provided by the Subordinate Command/parent headquarters. Strategic Mov Con is exercised by J4 Mov, through 4 CFMCU (duties and responsibilities of 4 CFMCU are at Annex G) in conjunction with the TFMO/UEO as appropriate.

13. GS Bn/Base/Wing movement personnel are responsible for ensuring that personnel, materiel and equipment, depart the Mounting Base in the correct order, and composition, to ensure orderly arrival at the POE, in the planned loading sequence. Movement to the POE is to be in response to the "call forward" from the POE Mov Con Det. Drivers and other personnel associated with particular vehicles, normally travel with their vehicles unless moved by rail to the POE, in which case only a handling team (identified and tasked in the Strategic Movement Order [Mov O]) will need to be provided. Vehicles being transported by air must be clearly marked with their chalk number and moved to the Airport of Embarkation (APOE) as complete chalks.

THE PORT OF EMBARKATION

14. Responsibility for the Mov Con of elements from "home" locations, up to the time they depart the Mounting Base on call forward to the POE rests with the Subordinate Command (e.g. Area HQ parent Base/Wing/GS Bn Tfc Tech/ movement personnel). On arrival at the POE there is a requirement for an orderly hand over to the 4 CFMCU Mov Con Det. The co-ordination of embarkation to ships and aircraft at the POE is a 4 CFMCU Mov Con Det responsibility, however the transportation agency whether military or civil, retains authority for the acceptance of personnel, vehicles and equipment. Assistance during embarkation, such as driving vehicles onto ships or trains, may be required from deploying forces. The Mounting Base will provide all other support if it is not available from the resources at the POE. While embarked, forces are under command of the operator of the aircraft or vessel, but remain under command for movement of NDHQ through J4 Mov.

FORWARD STAGING BASE

15. Depending on the distance from a POE to POD it may be necessary to establish a Forward Staging Base along the LOC/L of C. The purpose of a Forward Staging Base is to facilitate refuelling, crew changes and re-configuration of the Task Force as may be required. The Forward Staging Base may develop into a support area for the sustainment of the deployed Task Force following deployment.

THE PORT OF DISEMBARKATION

16. On arrival at the POD, the Mov Con aspects of the disembarkation are the responsibility of 4 CFMCU Mov Con Det. From there, responsibility passes to the "in theatre" Mov Con Organization. The Deputy TFMO, (or other designated appointment as the TFMO normally moves with the last chalk) or HQ Movement Co-ordination Centre (MCC), general duties and responsibilities of a MCC are at Annex I, liaise with 4 CFMCU Mov Con Det, who provide the reporting link to J4 Mov Ops, NDHQ. This liaison facilitates co-ordination of an even flow. Some form of "Theatre Activation Organisation" is likely to be responsible for establishing facilities at the PODs. The size and capability of the Theatre Activation Organisation, and type of vehicles and equipment being moved, will dictate the infrastructure required. There will normally be a need for security, administration, communications and cargo handling assistance. The detailed requirements will normally be included in the National Movement Order (Mov O) following a reconnaissance.

IN-THEATRE MOVEMENT

17. Once in theatre, the LOC/L of C may be shared with other nations and both military and civil users. It is essential that the control of CF assets be fully integrated into the overall theatre movement plan. This is a responsibility of the CF Task Force Commander. The CF Task Force Comd is likely to use his Mov Staff /TFMO, to co-ordinate all Task Force movement, up to the point where command is passed, either to the operational commander, to a NATO HQ or other Combined Force HQ. From this point forward, movement becomes the Operational HQs responsibility. The general responsibilities for a deployed Task Force HQ Mov Staff are detailed at Annex C although they will be further developed by the CF Joint Headquarters (CF JHQ) / Joint Support Group (JSG) Project.

18. An in-theatre Mov Con Organization will normally establish a Movement Co-ordination Centre (MCC) and deploy Mov Con Dets to movement terminals within the AO forward of the PODs, general duties and responsibilities of an "in theatre" Mov Con Unit are at Annex H. When provided from CF resources, and depending on the scenario, this organization could include the JHQ Mov Staff, a CF Mov Con Unit or some other ad hoc grouping. In Theatre Mov Con Dets can be deployed along the LOC/L of C in Marshalling, Staging or Assembly areas. Some of their general responsibilities are listed at Annex K.

MARSHALLING AREA

19. The movement of vehicles and heavy equipment will usually be by sea, personnel will normally move by air. There will consequently be a requirement for a Marshalling Area to be established. This facility provides an area where vehicles, equipment and personnel can be reformed (or "married up") into unit groups. Ideally, it will be close to the SPOD to allow a quick vessel off-load, but sufficiently distant to avoid congestion.

STAGING AREA

20. If it is a considerable distance from the POD Marshalling Area to the Assembly Area there may be a requirement to establish and use a Staging Area (or Staging Areas). At a Staging Area the following activities may take place:

- a. vehicles are re-fuelled;
- b. minor repairs are completed;

- c. personnel are fed and rested; and
- d. vehicles/equipment are formed up into unit packets and directed to the Assembly Area.

ASSEMBLY AREA

21. Once the vehicles/equipment and stores arrive at the Assembly Area:
- a. vehicles are re-fuelled;
 - b. minor repairs are completed;
 - c. personnel are briefed and any final training completed;
 - d. vehicles and trailers are loaded with their combat supplies; and
 - e. vehicles/equipment are formed up in unit packets and directed to their operational areas.

FINAL DESTINATION

22. The definition of the "Final Destination" (FD) is "an assembly area within the area of operations (AO) where a unit, formation or capability is required to be ready for mission execution in accordance with the Commander's CONOPS". In NATO operations it is normally at the FD that national, or lead nation (LN) responsibility for deployment and/or sustainment movement terminates and Transfer of Authority (TOA) to a NATO Commander occurs.

REDEPLOYMENT

23. Procedures for redeployment are essentially the reverse of those for deployment. However, particularly when returning to Canada, over-familiarity can lead to a degree of assumption. The deployed TFMO is to co-ordinate the redeployment requirements with J4 Mov so that redeployment plans can be developed and resources (generally air and sea lift) can be secured. J4 Mov's responsibility for movement will generally end at the POD in Canada. From the Canadian POD it is the Force Generators responsibility to return personnel and equipment to home bases/final destinations. As the redeployment plan firms up it is important that the Force Generators are kept informed, so that they can ensure that appropriate transport and administrative arrangements are put in place to execute an efficient clearance from the POD. To that end it is essential that the TFMO reminds the Task Force Administrative (ADM) Staff to copy Force Generators with redeployment details, particularly where small detachments, or individual personnel, are moving with a larger unit. For example if an aircraft with 120 personnel from Petawawa and a detachment of 4 from Greenwood was returning to an APOD at Trenton both LFWA and 1 CAD would need to be informed so that appropriate onward movement arrangements could be arranged.

SECTION 2 - MOVEMENT COMMAND, CONTROL AND COMMUNICATIONS

GENERAL

1. Movement Command, Control and Communications (C³) is critical to a successful operation. There must be a clear chain of command that is understood by all, a system of control to monitor and measure progress, and a communications systems including verbal, written and electronic techniques that can respond to the needs of all concerned.

COMMAND

2. In peacetime, J4 Log, NDHQ is part of the J4 Mat /DG Log Branch which is responsible to the CDS for the movement function. Within J4 Log the Mov Staff function is carried out by J4 Mov, the responsibilities of J4 Mov are listed at Annex A.

3. Most Subordinate Command (Chapter 1 paragraph 6 to this manual) HQs have a Mov Staff that is responsible to the respective Commander. The general responsibilities of these Subordinate Commands HQ Mov Staffs are listed at Annex B and they should be expanded as necessary in the respective Standing Operating Procedures (SOPs).

4. The national Mov Con Unit, 4 Canadian Forces Movement Control Unit (4 CFMCU), is controlled directly by J4 Mov and its responsibilities are shown at Annex G. Normally, 4 CFMCU will assume operational control of "in-place" Mov Con assets to control the move of units within Canada. Where there are no "in place" Mov Con assets 4 CFMCU is likely to be tasked to deploy Mov Con Dets. The CF General Support (GS) Group has a remit to form a deployable Mov Con unit, up to Coy strength, from elements of GS Bn Mov Platoons, to provide "in-theatre" operational Mov Con. The JSG Project is currently investigating other options. The responsibilities of such an "in-theatre" Mov Con Unit are shown at Annex H.

5. Area Support Group (ASG). Land Force (LF) Combat Service Support (CSS) units have been structured so that on operational deployments, these units or elements of them, either on their own or as part of larger service support entities, can provide CSS to general purpose land combat forces. In Canada under normal circumstances, these elements train to meet their readiness requirements and provide CSS to field force and non-field force service dependencies, in each of the four LF Areas.

6. An ASG is a formation consisting of a HQ (e.g. 1 ASG HQ) and subordinate CFBs/ASUs/GS Bns and other smaller units (e.g. RCA Band, CFSPDB etc). ASG units (ASUs/CFBs/GS Bns) provide CSS, administration and technical service support to military elements and non-LF dependencies, as may be assigned within LF Area boundaries. ASG units provide CSS primarily at the levels of second line and beyond. ASUs/CFBs provide infrastructure, while GS Bns provide field force units and detachments. ASG units are responsible for planning, coordinating and controlling movement in support of operational formations/units within its Area. GS Bn Mov Platoons may also be required to provide Mov Con Dets in support of national operations or exercises. GS Bn Movement Platoon (Mov Pl) tasks are essentially embraced at Annex E and Annex K.

7. The Air Movement Organization. The Air Movement Organization supports the requirement to provide an operationally ready air transport force. Air Movements Squadrons (Air Mov Sqn) have been established at locations where there is a recurring need for air transport support. The responsibilities of an Air Mov Sqn are listed at Annex J. At an airhead there will be an interface between the MAMS and the Mov Con Det. For a departing passenger flight the Mov Con Det is responsible for presenting the chalks to the departure holding/waiting area (or equivalent). The MAMS will be responsible for the chalk from this area to the aircraft, when the aircraft commander assumes control of the chalk. The MAMS are responsible for a chalk arriving on an aircraft to the arrival holding/waiting area (or equivalent), where the Mov Con Det will assume control for the briefing and onward move of the passengers. For vehicle and freight chalks, a mutually agreed handover area must be arranged between the two organizations.

8. Delineation Of Mobile Air Movements Section (MAMS) And Movement Control Detachment (Mov Con Det) Responsibilities. At the Airport of Embarkation or Airport of Disembarkation (APOE/APOD) MAMS personnel, when tasked, are responsible for all activities that occur at the "airhead". The airhead can generally be defined as the security perimeter that surrounds an airfield, or airport, which is to be known as the "blue perimeter" it is illustrated at Figure 2-2 below. A tabular description of these responsibilities is at Annex L.

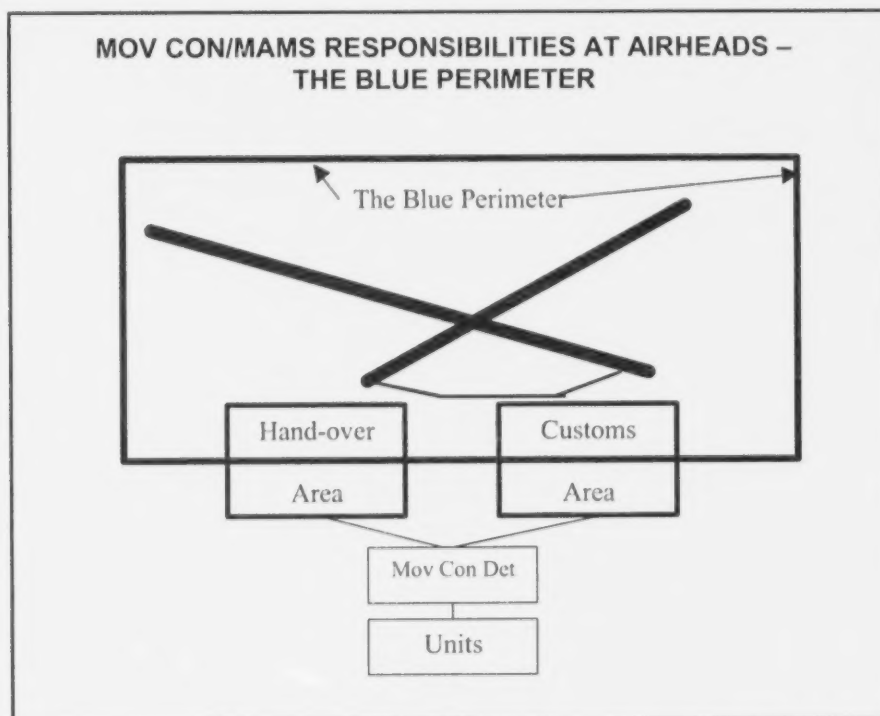


Figure 2-2 Mov Con/MAMS Responsibilities at Airheads - the Blue Perimeter.

9. The level of MAMS required to conduct, and support, airlift/air transport operations remains a 1 CAD responsibility at all times. However the initial determination regarding the employment of MAMS in support of strategic airlift is primarily dependent on the types of aircraft used, military or civilian charter. When NDHQ, through J4 Mov, tasks 1 CAD HQ to provide CF air transport, the provision of MAMS (and other associated support) is solely a 1 CAD responsibility determined by the Airlift Comd. When civilian aircraft are chartered J4 Mov will determine the level of contracted support, assess the requirement to provide technical assistance and task 1 CAD HQ to provide MAMS support as required. Regardless of the type of air transport employed, a requirement exists for complete and detailed communication between J4 Mov and 1 CAD to ensure that appropriate support is provided in all circumstances. Figure 2-3 depicts the general responsibilities for determining the initial requirement for MAMS employment.

Loads	Civilian Charter	CF and Civilian Charter	CF Aircraft
Cargo and/or Pax	J4 Mov	1 CAD/J4 Mov	1 CAD

Fig 2-3 MAMS Tasking Matrix

10. During an operation the command relationships remain the same. The general principle that a commander should command the resources necessary for him to complete his mission should be followed. During strategic movement command of Mov Con and MAMS personnel, is normally retained by DCDS and Comd 1 CAD respectively. When a Task Force Commander is allotted additional Mov Con personnel from either NDHQ, or NDHQ controlled units for operational intra theatre movement, then these personnel will remain under his control until the task is completed. As previously mentioned a key individual in the deployment process is the TFMO who is the Task Force Commander's main Mov Staff officer. The responsibilities of the TFMO are at Annex D.

CONTROL

11. The foundation of successful military movement rests on the establishment of centralized control, at the highest practical level. Factors such as the complexity of the move, security and communications requirements and the degree of control will determine the level at which command and control is exercised.

12. The basic framework within which movement is planned, executed, controlled and monitored is outlined in the various Mov Os/Instrs prepared by the Mov Staff. Once the move begins, progress must be monitored and reported on a regular and systematic basis in order to keep the Movement Organization and other staffs informed. In this manner timely action can be initiated, to respond to unforeseen delays, changes or resource shortfalls. In planning the monitoring system, the following should be considered:

- a. security during all phases of the move is essential and must always be a factor;
- b. reporting systems must be secure if classified information is to be exchanged;
- c. the information provided must be timely and accurate;
- d. availability of communications facilities;
- e. those responsible for making reports must be aware of the facts and know the report format; and
- f. only essential information should be transmitted.

13. There are a number of report formats (as per Unit Mov SOPs) that are routinely used in reporting systems, as follows:

- a. **Daily Reports.** Daily reports normally include a summary of all movement that has occurred during the previous twenty-four hours (24 hrs) in the area of responsibility of the reporter. The daily report should also contain a forecast of movement planned activity during the next 24 hrs. Reports are made at all levels to the next higher movement authority;
- b. **Dispatch/Arrival/Delay Advice.** All receiving, and intermediate terminals, are initially advised of Estimated Times of Departure/Arrival (ETD/ETA) and load composition, and subsequently updated with Actual Times of Departure/Arrival (ATD/ATA), by Mov Con at the point of embarkation/disembarkation (POE/POD). This information is to be made available to Mov Staff as required; and

- c. **Incident Reports.** Incidents likely to affect the successful completion of the movement plan are to be reported to the Mov Staff by the fastest means available.

COMMUNICATIONS

14. The ideal communications system to support the movement plan would be secure, available, simple to use and fast. Unfortunately the ideal rarely exists, therefore compromises must invariably be made. The best use must be made of the communications that are available.

15. In addition to the normal military systems, civilian communication systems may also be available in theatre. Most commercial systems are not secure and additional security precautions may be necessary if these systems are used.

16. The civilian agencies under contract to provide transportation may also have communication systems that can be used, where possible these should be included in the contract. In planning military communications systems, consideration should be given to making the maximum utilization of in-place civilian systems.

17. The communication system required by the Movement Organisation is outlined at Annex M.

J4 MOVEMENT (J4 MOV) NDHQ

1. J4 Movement (J4 Mov) in NDHQ is a Section of J4 Logistics (J4 Log) and has sub sections of operations, plans and doctrine (J4 Mov Ops, J4 Mov Plans and J4 Mov Doc). It is responsible for:

- a. providing movement and transportation advice to the DCDS;
- b. planning strategic movement and transportation support to CF operations (including response to natural disasters) and exercises, and conducting strategic movement reconnaissance (recce);
- c. preparing movement estimates and staff checks to determine the requirement for strategic transport resources;
- d. determining the availability, cost and capability of strategic movement and transportation resources;
- e. allocating available strategic movement and transportation resources;
- f. identifying strategic movement and transportation shortfalls and arranging for the provision of additional resources to meet these shortfalls;
- g. liaison with DLBM, especially TM 6, for the development, co-ordination and letting of contracts with commercial carriers for transportation resources;
- h. formulating, in co-operation with the NDHQ Joint Staff branches, Task Force Commander and supporting commands, the Task Force Movement Table (TFMT) for the deploying Task Force;
- i. preparing the movement annexes to the national warning order (Wng O) and the national operation order (Op O);
- j. developing the national sustainment and redeployment movement plans;
- k. assist in staffing cases for augmentation personnel for 4 CFMCU and any in-theatre movement control (Mov Con) organization;
- l. developing and maintaining policy and doctrine for CF Movement to support CF operations;
- m. overseeing CF movement systems, policies and standardization proposals;
- n. preparing proposals identifying the CF position in relation to civil transport infrastructure development;
- o. the development, integration and maintenance of movements Automated Data Processing (ADP) systems including the Joint Establishment and Movement Management System (JEMMS);
- p. assisting in the development of defence policies in relation to strategic transportation resources;

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- q. identifying the technical requirements for international agreements and liaison with the responsible agencies negotiating the appropriate terms;
 - r. formulating and promulgating policies, instructions, and relevant movement information in appropriate instructions and publications;
 - s. advising on the development of movement training courses;
 - t. preparing and presenting the DND/CF position as it concerns movement in regard to other government departments such as Transport Canada and to military allies such as NATO, UN, ABCA and NORAD;
 - u. ensuring that movement requirements are considered prior to the acquisition of new equipment; and
 - v. providing movement staff support as required.
2. J4 Mov Ops, as part of J4 Mov, is responsible for operating the National Defence Movement Co-ordination Centre (NDMCC) and:
- a. co-ordinating the strategic deployment and sustainment of a Task Force between Canada and the area of operations (AO);
 - b. exercising control over the National Movements System;
 - c. assisting force generators in the co-ordination of assembly movement activities;
 - d. assisting and advising the "in theatre" Task Force HQ in the co-ordination of reception staging and onward (RSOM) movement (RSOM) activities;
 - e. providing a "clearing house" function for transportation information;
 - f. co-ordinating between the various agencies involved with deployment and redeployment including:
 - (1) between the various NDHQ staffs and force generators on movement matters;
 - (2) between the providers and users of strategic lift required to source transportation to meet surge requirements;
 - (3) interfaces with external agencies such as UN, NATO, Other Government Departments (OGDs), Non-Government Organizations (NGOs); and
 - (4) providing or hosting liaison officers from or to the above organisations.
 - g. tasking 4 CFMCU;
 - h. monitoring and ensuring that adequate strategic lift resources are generated and available to the movement task at hand;
 - i. adjudicating between equal and competing priorities for the allocation of transportation capacity when two or more activities share a common sustainment pipeline, referring cases to J3 when necessary;

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- j. analysing backlogs and recommending route diversions when movement requirements saturate available capacity; and
- k. maintaining statistical data on strategic movement and providing input to the J7 After Lessons Learned (After Action Review [AAR]) process.

SUBORDINATE COMMANDS

1. As this manual generally provides the NDHQ Strategic overview, the term "Subordinate Commands" is used as a generic term. It is used to embrace the Maritime Staff, Land Staff, Air Staff, Land Force Area Headquarters, or CF Joint Headquarters (CF JHQ), 1 Canadian Air Division (1 CAD), Maritime Command Atlantic (MARLANT) or Maritime Command Pacific (MARPAAC) as specified.
2. The movement tasks to be performed by Subordinate Commands are:
 - a. ensuring that the Subordinate Command tasks outlined in the NDHQ movement orders (Mov O) are correctly actioned (Land Staff/Area/1 CAD/Mar Staff);
 - b. planning and controlling the Subordinate Command's internal movement requirements (Land Staff/Area/1 CAD/Mar Staff);
 - c. where a Subordinate Command acts as a transport agency, integrating that agency into the National Movement System (Land Staff/Area/1 CAD/Mar Staff);
 - d. providing Subordinate Command, control and technical supervision of Area Support Group (ASG)/Wing movement organization (Area/1 CAD);
 - e. remaining current on all national contingency plans (COPs) which require their support (Land Staff/Areas/ Air Staff/Mar Staff);
 - f. developing the Subordinate Command's portion of National COPs (Land Staff/Air Staff/Mar Staff);
 - g. preparing movements estimates, plans and instructions (Land Staff/1 CAD/Mar Staff);
 - h. identifying and tasking of Subordinate Command resources required for the execution of orders (Land Staff/1 CAD/Mar Staff);
 - i. providing movement advice to the respective COS (Land Staff/Area/1 CAD/Mar Staff);.
 - j. collecting and providing information required by J4 Mov (Land Staff/1 CAD/Mar Staff);
 - k. co-ordinating the Subordinate Command's input to Task Force Movement Tables (TFMTs) for subsequent presentation to the Subordinate Command's Operational Staff (Land Staff/1 CAD/Mar Staff); and
 - l. overseeing the development and maintenance of any movement related courses which have been made the responsibility of that Subordinate Command (Land Staff/Area/1 CAD).

GENERAL RESPONSIBILITIES FOR TASK FORCE HQ/CF JHQ J4 MOV STAFF

1. A Task Force Commander generally exercises responsibility for "in-theatre", operational, movement through the J4 Mov division of the Task Force HQ general staff. Although the CF JHQ J4 Staff are developing detailed SOPs and the Joint Support Group (JSG) Project are examining alternative options for theatre activation including Movement, the general duties of the J4 Mov Staff within any CF Task Force HQ are as follows:

- a. to prepare Task Force movement orders (Mov O) and provide movement input to operation plans and orders;
- b. to plan, provision, co-ordinate and monitor the in-theatre movement requirements for deployment * (reception, staging and onward movement [RSOM]†), sustainment and redeployment;
- c. to establish priorities for the use of allocated transportation resources;
- d. to liaise with the host, or lead, nation (HN/LN) and arrange for additional intra theatre movement and transportation resources as required;
- e. to liaise with allied forces and ensure that the CF Task Force intra theatre movement plan operates in conjunction with those of allies;
- f. to plan for the retrograde flow of casualties, prisoners, salvageable stores and equipment and advise J4 Mov Ops at NDHQ of any strategic movement implications;
- g. to provide advice to the operations staff (Ops Staff) on the priority of repair to movement terminals or routes;
- h. to co-ordinate intra theatre policy for movement control (Mov Con) and the use of all modes of transportation (MOT); and
- i. to provide movement information to J4 Mov Ops at NDHQ.

* Although NDHQ J4 Mov is responsible to DCDS for strategic movement, which normally embraces deployment, the Task Force Comd through his Ops and Mov Staff will convey his priorities to NDHQ for that deployment. The Task Force responsibilities in theatre essentially commence when the strategic transport, normally air or sea, arrives at the APOD/SPOD, and the necessary clearances have been made by the strategic Mov Con Det for discharge to commence.

† Although NATO has adopted RSOM, when working with the US Forces be advised that US doctrine users RSOI – reception, staging, onward movement and integration.

RESPONSIBILITIES OF THE TASK FORCE MOVEMENT OFFICER (TFMO)

1. For CF operations where a Task Force is formed, from more than one unit, a Task Force Movement Officer (TFMO) and a deputy are to be appointed for that Task Force by the Task Force Comd. The TFMO has the following responsibilities:

- a. co-ordinates the planning and execution of all the movement aspects for the deployment of that Task Force, including preparation of the Task Force Movement Order (Mov O) and conduct of reconnaissance;
- b. is to be fully conversant with the Task Force Comd's plan and priorities so that he/she is able to make decisions in accordance with those plans and priorities;
- c. is responsible for the preparation of the Task Force Movement Table (TFMT) using the Joint Establishment and Movement Management System (JEMMS);
- d. establishes and maintains liaison with the Unit Embarkation Officers (UEOs) of the units in the Task Force;
- e. is to remain in the deploying theatre, until all the Task Force has deployed/redeployed, this will normally require early deployment of the Deputy TFMO (or another designated appointment) to oversee reception;
- f. is the initial point of contact with MAMS/Mov Con Det (for Rail and Port Operations) for specialist technical matters pertaining to the Task Force. In particular he/she must work together with the OIC MAMS/ to prepare Formation/Unit Aircraft Loading Tables (FUALTs) and the Mov Con Det Comd for preparation of rail/ship loading tables and stowage plans;
- g. is to keep the movement control (Mov Con) organization informed at all times on the movement aspects of the deployment; and
- h. must confirm that a deputy has been appointed, and if one has not is to ensure that one is, and establish liaison with him/her. The deputy must be able to act for the TFMO in all capacities, when required and be prepared to deploy early to oversee reception.

2. Both the TFMO and deputy should be Movement Officer's Course qualified.

GENERAL SUPPORT BATTALION (GS BN)/BASE/WING MOVEMENT ORGANIZATIONS

1. The GS Bn/Base/Wing movement organizations are under the operational control of their parent ASG / 1CAD / CMS Formations as appropriate. This ensures a seamless movement chain of command and line of communication (LOC/L of C), for both peacetime and operational situations.
2. GS Bn/Base/Wing movement organizations are responsible for:
 - a. tasking and providing administrative support to Movement Control (Mov Con) units/Dets located within the command's area of responsibility.
 - b. receiving requests and instructions for the movement of personnel and shipments of materiel for which they are responsible;
 - c. providing integral (traditionally "first line") direct advice and assistance to units moving, including:
 - (1) Briefing personnel on the procedures and safety aspects of the terminal and mode to be used;
 - (2) Regulating the dispatch of personnel, vehicles or equipment to/from the terminal, in accordance with the movement plan, or when called forward by the next recipient on the LOC/L of C;
 - (3) Marshalling the personnel, equipment and material into the correct loading sequence for call forward to the transport agency for loading;
 - (4) Assisting in arrangements for the provision of service support for the forces involved in movement;
 - (5) Ensuring that detailed procedures and safety requirements, for dangerous goods are fully understood and implemented;
 - (6) Checking and completing the appropriate movement documentation, including that required for customs;
 - d. selecting modes of transport (MOT) and routes to satisfy movement requirements;
 - e. providing Mov Con detachments and operating terminals as directed;
 - f. making arrangements with carriers and other agencies (military and commercial) and preparing the documentation necessary for effecting movement;
 - g. ensuring that shipments are prepared properly for movement and are loaded safely on MOT;
 - h. tracing lost or delayed shipments and initiating claim action against carriers when necessary;
 - i. keeping interested organisations informed on current movement situations and providing Movement Situation Reports (MOVSITREPs) as directed;
 - j. producing cost data and estimates for movement projects;

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- k. ensuring that in-transit shipments are received, stored and forwarded in a safe manner;
- l. clearing shipments through customs (Note: where a base includes an Air Mov Sqn, the Air Mov Sqn will be responsible for air movement customs clearance);
- m. carrying out proficiency training and testing programmes for movement personnel;
- n. maintaining:
 - (1) technical data with respect to movement by all MOT; and
 - (2) military and civil regulations pertaining to the movement of personnel, materiel, and household goods and effects (HG & E).
- o. keeping current with National and Command contingency movement plans; and
- p. reporting movement matters directly to the appropriate Movement Co-ordination Centre (MCC).

**RESPONSIBILITIES OF THE UNIT
EMBARKATION OFFICER (UEO)**

1. The Unit Embarkation Officer (UEO) is an officer, warrant officer or Snr NCO responsible for the planning, training, organizing, Unit Movement Order (Mov O) writing and documenting of his unit for deployment.
2. Commanding Officers of every unit with a deployable role are to appoint a UEO. Personnel selected for UEO duties need to be qualified on the Unit Embarkation Officer Course (AGLV) given at the Canadian Forces School of Administration and Logistics (CFSAL) Trade Training Company.
3. When appointed, the UEO is responsible for the following:
 - a. establish and maintain liaison with the Movement Control Detachments (Mov Con Det), Mobile Air Movements Sections (MAMS) and/or Task Force Movement Officer (TFMO), when appointed, and respond to their direction on all aspects of the embarkation;
 - b. develop, or update, Unit Mounting Standing Operating Procedures (SOPs) to cover in detail the warning, deployment and redeployment phases of unit movement;
 - c. select and/or train personnel required to staff the Unit Embarkation Party;
 - d. maintain the Unit Staff Table (UST) in Joint Establishment and Movement Management System (JEMMS) format. Ensure that Unit Movement Staff Tables (UMST) and Load Lists are accurately prepared and presented when requested, and co-ordinate the preparation of the unit's input to a Task Force Movement Table (TFMT) when appropriate;
 - e. be prepared to write and issue the Unit Mov O;
 - f. co-ordinate the preparation of Movement Requests for Dangerous Goods as required;
and
 - g. conduct reconnaissance of the following:
 - (1) routes to and from the Port of Embarkation (POE),
 - (2) POE layout, and
 - (3) POE facilities.
4. During the Warning Phase, the UEO is to:
 - a. review appropriate UMSTs or applicable portions of the TFMT;
 - b. liaise with the OIC MAMS/Mov Con Det Comd/TFMO assigned to the POE to arrange for the joint preparation of Loading Tables;
 - c. submit Movement Requests for Dangerous Goods as required;
 - d. with the TFMO, determine the quantity of loose cargo that should be delivered to the POE and held for use as "filler cargo" whenever space is available. Priorities of delivery must be given to all loose cargo so that it may arrive at destination in the desired sequence. This will not

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always be possible but these priorities will at least indicate to the Mov Con Det/MAMS personnel the degree of urgency for the shipment of every loose cargo item;

- e. liaise with the Mov Con Det to outline and co-ordinate requirements at the POE;
- f. confirm arrangements with Mov Con Det for the preparation of passenger/cargo manifests;
- g. arrange, if practical, for the reconnaissance of the POE by all sub-unit commanders;
- h. plan, with the Mov Con Det and the TFMO, the movement of loads to the POE;
- i. write and issue the Unit Mov O;
- j. assist in briefing the unit, in particular, ensure that all personnel are briefed on POE conduct, movement discipline and traffic circuits before they move to the POE; and
- k. ensure that appropriate documentation has been completed as required, e.g. passport, yellow book, etc.

5. During the Deployment Phase, the UEO is to:

- a. maintain liaison with the Mov Con Det to ensure that passengers and cargo are presented for embarkation when required;
- b. arrange for the delivery of filler cargo to the POE as required by the Mov Con Det;
- c. provide personnel to operate vehicles within the POE as directed and arrange for the positioning of alternate/replacement vehicles;
- d. ensure that all vehicles and cargo are properly prepared for movement prior to departure from the unit's home location and that passengers have been briefed. Checks by the UEO must include a 100% check of baggage for prohibited dangerous goods items prior to arrival at the POE;
- e. ensure that the order of movement specified by the TFMO is followed as closely as possible;
- f. provide the Mov Con Det with a copy of the nominal roll of each chalk;
- g. ensure that Chalk Comds for each mission are thoroughly briefed on their responsibilities and provided with copies of passenger/cargo manifests;
- h. ensure that a high standard of discipline is maintained with respect to;
 - (1) safety perimeters,
 - (2) traffic circuits, and
 - (3) out of bounds areas.
- i. provide overall supervision of the embarkation of his unit(s) or sub-unit(s). To accomplish this he must not depart until the last deployment flight/ship.

6. During Redeployment Phase, the duties of the UEO are essentially the same as those outlined for the Deployment Phase.
7. Further responsibilities may be assigned to UEO in the pertinent Operation Order, according to specific requirements.

4 CANADIAN FORCES MOVEMENT CONTROL UNIT (4 CFMCU)

1. 4 Canadian Forces Movement Control Unit (4 CFMCU) is tasked by J4 Mov Ops. Depending on the results of the Joint Support Group Project there may be significant changes to this annex. 4 CFMCU is responsible for the executive co-ordination and detailed execution of the J4 Mov strategic movement plan by:

- a. providing strategic level movement control (Mov Con) for all phases of a CF operation;
- b. controlling the movement of a deploying force along the strategic LOC/L of C by establishing, or having placed under operational control where necessary, the required number of Mov Con Dets;
- c. providing a deployable Movement Co-ordination Centre (MCC) capable of on 24/7 operation when required;
- d. monitoring movement as it takes place and maintaining records for statistical purposes;
- e. ensuring timely movement information is passed by Mov Con Dets to J4 Mov Ops and the operational Movements Organisation;
- f. issuing executive movement instructions (Mov Instr) to the user;
- g. providing technical expertise to Commands, Formations and deploying units when required for a Technical Assistance Visit (TAV);
- h. establishing effective communication links with key HQs, Agencies and units;
- i. providing a nucleus of personnel trained in Mov Con and maintaining an organisation capable of deployment, or expansion, in support of CF contingency requirements;
- j. conducting detailed movements recces as required;
- k. provide augmentation to J4 Mov as required;
- l. convening, organizing and running movement co-ordination conferences, as required;
- m. processing DND customs import and export entries as directed by J4 Mov Ops;
- n. providing Mov Con assistance, within Canada, to other nations as required to control the movement of:
 - (1) materiel by sea through Canadian and international ports;
 - (2) overseas materiel by commercial air through Montreal International Airports;
 - (3) Arctic resupply materiel as directed by NDHQ; and
- o. Maintaining readiness states by conducting collective, augmentee, deployment and currency training for Mov Con personnel within and external to the Unit.

2. 4 CFMCU is also responsible administratively for:

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- a. movement of baggage and privately owned motor vehicles (POMVs) arriving and departing by sea, through Canadian ports;
- b. arranging the movement of foreign/Canadian military personnel arriving by commercial air through Montreal International Airports when requested; and
- c. processing DND customs import and export entries for central/eastern Canada; and
- d. conduct and administer the CF Movement officers Course (AECV) on behalf of CFRETS.

IN-THEATRE MOVEMENT CONTROL (MOV CON) UNIT

1. When an in theatre Movement Control (Mov Con) Unit is deployed, or established, the CO of that unit may be designated as the Task Force Movement Officer (TFMO). The TFMO is responsible for providing advice to the Task Force Commander on executive movement matters within the theatre. The tasks of the in-theatre Mov Con Unit are:

- a. to establish and operate a Movement Co-ordination Centre (MCC), sometimes referred to as the Mov Ops cell, which is responsible for:
 - (1) directing and coordinating all operational level (intra-theatre) movement and transportation resources and requesting additional transportation resources from any senior operational MCC or NDHQ J4 Mov as applicable;
 - (2) establishing and controlling access to the operational LOC/L of C;
 - (3) tasking transportation resources held by, or allocated to, the Task Force and co-ordinating and integrating Host Nation Support (HNS) transportation resources;
 - (4) co-ordinating the operation of movement terminals;
 - (5) monitoring the availability and capacity of PODs to receive and sustain the Task Force from outside the theatre;
 - (6) establishing and implementing diversion plans as required; and
 - (7) collating and maintaining theatre movement information and passing it through the Movement Organisation.
- b. provide overall supervision of Mov Con Dets within the theatre and establish and maintain communications between them; and
- c. execute movement orders in accordance with pre-determined priorities and issue executive movement instructions to the users.

RESPONSIBILITIES OF A MOVEMENT CO-ORDINATION CENTRE (MCC)

1. In a major operation, when formations/Task Forces and units are moved by multi-modal means, it may be necessary for the HQ, that has co-ordinating responsibility for the operation, to establish a subordinate Movement Co-ordination Centre (MCC) to co-ordinate this activity. For example J4 Mov (for DCDS) may task 4 CFMCU to establish an MCC in Canada during the deployment phase, or the CF JHQ might request that 4 CFMCU deploy a MCC into a theatre of operations to augment the "in theatre" Movement Staff and co-ordinate the movement aspects of reception, staging and onward movement (RSOM †).

2. When established the MCC is responsible for:

- a. co-ordinating the activities of the Movement Control Detachments (Mov Con Dets) operating at the supporting ports of embarkation/disembarkation (POE/POD), railheads and road movement terminals, and controlling the flow in to, out of and within theatres;
- b. within Canada co-ordinating with the appointed base OPI the movement of personnel and equipment from supporting airheads and/or railheads to the mounting base. In an operational theatre co-ordinating with the appropriate Host Nation (HN)/ Lead Nation (LN) or CF theatre activation organisation for the RSOM of personnel and materiel;
- c. ensuring that preparation of vehicles and cargo is finalized at the mounting base prior to the call forward instructions to the Sea and Air Ports of Embarkation (SPOE/APOE); and
- d. co-ordinating with J4 Mov Ops (National Defence Movement Co-ordination Centre [NDMCC]), Task Force Movement Officer (TFMO), Sea/Air Transport Liaison Officer (STLO/ATLO) - when appointed, and the Port Mov Con Det Comd the call-forward activities from the mounting base to the SPOE/APOE and RSOM at/from the SPOD/APOD.

† Although NATO has adopted RSOM, when working with the US Forces be advised that US doctrine users RSOI – reception, staging, onward movement and integration.

AIR MOVEMENTS SQUADRONS (AIR MOV SQN)

1. The Air Movements Squadrons (Air Mov Sqn) are responsible for:
 - a. supervising and controlling the processing and handling of all passengers, baggage, freight and mail at home airfields (8 Wing Trenton and 17 Wing Winnipeg) transported by military or civilian chartered aircraft;
 - b. providing air transport/lift payload inspection, loading and rigging;
 - c. providing a multi-modal forwarding service of freight, mail and baggage arriving by all aircraft at home airfields;
 - d. liaising with local cargo shippers for the co-ordination and control of air cargo flow;
 - e. within Canada, providing the geographical area passenger co-ordination service and link between J4 Mov and the Air Operations Centre (AOC). Within the theatre of operation, when no Movement Control (Mov Con) Det is deployed, providing a similar service to the Task Force Movement Co-ordination Centre (MCC);
 - f. co-ordinating Customs processing at home airfields;
 - g. submitting reports and statistical returns on air traffic;
 - h. providing Mobile Air Movements Sections (MAMS) to support strategic airlift operations, and tactical air transport operations, on a world-wide basis, when tasked by 1CAD HQ.
 - i. conducting air movement training programmes for Traffic Technicians (Tfc Tech) and Air Transportation Officers and maintaining tactical airlift qualification currency.
2. MAMS are teams of air movements personnel formed within Air Mov Sqn resources to provide air transport support on operations. Within the airfield security or "blue" perimeter, MAMS are responsible for:
 - a. establishing liaison and co-operation with Mov Con Dets to ensure best use of movement resources;
 - b. providing and operating equipment in handling, loading and unloading cargo to and from aircraft;
 - c. transport of passengers and baggage to and from aircraft;
 - d. providing specialist advice on aircraft configurations, load preparation, safety instructions covering loading/unloading, and aerial delivery procedures including Tactical Air Transport;
 - e. liaison with airport authorities regarding aircraft processing and security;
 - f. liaison with the carrier on specific technical matters, regarding aircraft turnaround requirements (fuel, park, start etc);
 - g. liaison with Customs authorities regarding the processing of the aircraft and handover of freight from aircraft to Customs officials;
 - h. freight build-up and palletization;

- i. inspecting and weighing all air cargo;
- j. load planning and ensuring aircraft are loaded within prescribed weight and balance criteria;
- k. loading, unloading, securing and/or rigging of loads in designated aircraft;
- l. preparing all documentation relating to aircraft loads;
- m. arranging for the provision of water, Air Cargo Handling Equipment (ACHE) and in-flight meals;
- n. inspecting baggage for prohibited items to ensure it is safe for loading; and
- o. providing flight reconciliation (incl pax confirmation with NPSC/load data message).

MOVEMENT CONTROL DETACHMENTS (MOV CON DETS)

1. **General Responsibilities.** At each terminal the responsibilities of the Movement Control Detachment (Mov Con Det) will be very similar and comprise the following:

- a. reception of personnel, vehicles or equipment passing through the terminal;
- b. briefing personnel on the procedures and safety aspects of the terminal and mode of transport (MOT) to be used;
- c. regulating dispatch of personnel, vehicles or equipment from the terminal, in accordance with the movement plan, or when called forward by the next recipient on the LOC/L of C;
- d. marshalling the personnel, equipment and materiel into the correct loading sequence for call forward to the transport agency for loading;
- e. co-ordinating the provision of service support for the forces in movement;
- f. ensuring that detailed procedures and safety requirements, for dangerous goods are fully understood and implemented;
- g. checking and completing the appropriate movement documentation, including that required for customs;
- h. liaising with the transport agencies and civil/military authorities (i.e. MAMS, police, customs etc) involved in the move; and
- i. reporting movement activities to the appropriate Movement Staff (Mov Staff /Movement Co-ordination Centre (MCC));

2. **Assembly Bases.** Mov Con Dets located at an assembly base direct the movement of forces forward, either directly to a POE or to a mounting base, possibly via a staging base. Primarily the Mov Con Det will assist the unit in its preparations for the move, confirm transportation requirements, and co-ordinate and report on the actual movement.

3. **Staging Base.** At a staging base, the Mov Con Det will co-ordinate all movement-related activities of the forces from their arrival at the staging base until their departure for onward movement. When required the Mov Con Det will arrange for the cross-loading of personnel, vehicles and equipment to adjust for changes in priorities;

4. **Mounting Bases.** Mov Con Dets located at a mounting base, receive forces from home/assembly or staging bases and prepare them for onward movement and dispatch to the POEs. It is in this mounting base that final movement checks are carried out prior to the force being handed over to the transport agency. The Mov Con Det will provide liaison between Unit Embarkation Officer (UEO)/Task Force Movement Officer (TFMO) and the transport agencies. In particular the UEO/TFMO will be briefed on:

- a. times of departure to the POE;
- b. transport arrangements;
- c. routes;

- d. reporting procedures on arrival at the POE; and
 - e. any other pertinent information.
5. **Depots.** Depot Mov Con operations would not change appreciably from current Depot traffic functions; however, they would be responsive to Mov Staff/MCC call forward instructions and for decisions concerning priority of shipments, MOT or carrier to be used, timings of shipments and reporting.
6. **Railhead.** Mov Con Dets at railheads are responsible for the overall co-ordination of loading/off-loading operations. The unit being moved is responsible for the physical work involved under the technical supervision of the Mov Con Det. Specifically the Mov Con Det is responsible for:
- a. arranging for the placement of rail cars for loading/off-loading;
 - b. calling forward resources for loading/off-loading;
 - c. confirming with the unit/formation/J4 Mov and carrier who is responsible for provision the of rail tie-down equipment (kits) and bridge plates and ensuring they are properly controlled;
 - d. technical control of the loading/off-loading process to ensure that vehicles are loaded in the correct sequence and on the proper rail cars;
 - e. technical control over the securing of vehicles/materiel on-board the rail cars to ensure that the correct methods are used; and
 - f. liaison with the railways for pre off-loading/post loading inspections.
7. **Sea Port of Embarkation (SPOE).** At a SPOE the Mov Con Det is responsible for co-ordination with the UEO/TFMO, port authorities, civilian contracted stevedoring services, military loading parties and ships' personnel. Specifically, the Mov Con Det is responsible for:
- a. confirming the loading plan against established priorities;
 - b. calling forward forces in movement from home/mounting base to the SPOE;
 - c. ensuring that the load is loaded on the ship in the correct sequence and secured in such a manner as to arrive at its destination intact; and
 - d. acting as the sole CF agent in dealings with the shipping company, stevedoring company, customs and port authority.
8. **Air Port of Embarkation (APOE).** At an APOE, the Mov Con Det is responsible for the overall co-ordination between the forces in movement and the transport agency, be it civil or military. Specifically, the Mov Con Det is responsible for:
- a. ensuring that the Comd's priorities for airlift of pax/cargo are adhered to;
 - b. liaison and co-operation with MAMS when tasked and deployed at APOE to ensure best utilization of resources;
 - c. liaison with user units;
 - d. calling forward forces in movement from home/mounting base to the APOE;

- e. liaison with contracted carriers regarding contractual agreements;
 - f. communication with J4 Mov Ops regarding movements operations;
 - g. ensuring that appropriate passenger and cargo documentation are produced; and
 - h. sending appropriate Dispatch/Delay/Arrival Advice
9. **Sea Port of Disembarkation (SPOD).** The Mov Con Det that receives the force will normally be from 4 CFMCU, and their responsibilities are shown below:
- a. receive personnel, equipment and materiel from the transport agency;
 - b. dispatch the personnel, equipment and materiel to a marshalling area;
 - c. receive shipping and customs documentation and complete any customs clearances; and
 - d. act as the sole CF agent in dealings with the shipping company, stevedoring company, customs and port authority.
10. **Air Port of Disembarkation (APOD).** The Mov Con Det that receives the force at the APOD, will normally be from 4 CFMCU, and their responsibilities are shown below.
- a. establish liaison and co-operation with MAMS (when tasked and deployed) to ensure best utilization of resources;
 - b. receive personnel, vehicles, equipment or materiel from contracted carrier or MAMS;
 - c. liaise with user units, through Unit Embarkation Officer (UEO);
 - d. dispatch "inbound" personnel, equipment and materiel to a marshalling area;
 - e. call forward, receive and control "out bound" personnel, equipment and materiel from the marshalling area;
 - f. liaison with contracted carriers regarding contractual agreements;
 - g. communication with J4 Mov Ops regarding movements operations;
 - h. clearance and forwarding of cargo from customs authorities;
 - i. ensuring that appropriate passenger and cargo documentation is produced; and
 - j. sending appropriate Dispatch/Delay/Arrival Advice
11. An "in-theatre" Mov Con Unit/Detachments responsibilities are to receive personnel, equipment and materiel at a marshalling area and provide operational (intra- theatre) Mov Con support.
12. **Marshalling Area.** The in theatre Mov Con responsibilities will normally begin at the marshalling area, where personnel, vehicles and equipment will be received from the Mov Con Det at the PODs. General responsibilities are to provide operational (intra-theatre) Mov Con support as follows:
- a. receive and document personnel, vehicles and equipment into the marshalling area;
 - b. establish Unit holding areas;

- c. unite personnel, vehicles and equipment to re-form integral units;
- d. dispatch formed units along the LOC/L of C; to Staging Areas and Assembly Areas as applicable; and
- e. liaise with Mov Con Det at PODs to ensure a smooth flow from PODs to the Marshalling Area and any return traffic requirements back through the PODs.

MAMS/MOV CON DET DELINEATION OF RESPONSIBILITIES

This chart is designed to clarify the delineation of responsibilities between MAMS and Mov Con Det with regard to air movement related tasks. This information is to be used as a guide to supplement the related doctrine issues contained within this Manual and B-GG-005-014/AF-040 Movement Volume 4 – Air (to be B-GJ-005-404/FP040 Mov Sp Air).

Task	MAMS Responsibilities	Mov Con Det Responsibilities	Remarks
Load Preparation	Freight build-up and palletization for aircraft (ac) loading. Vehicle(Veh)/Freight(Frt) inspections for airlift/air transport Provide specialist advice to Unit/ASU. Prepare documentation required for ac loading.	Ensure unit is informed of all necessary cargo prep requirements including Dangerous Goods and AGAI Foods Canada Regulations. Provide liaison between airlift/transported unit(s) and MAMS to arrange availability/delivery of veh/freight to MAMS.	Unit will prepare vehicles and consolidate freight into containers i.e.: triwalls. Unit to ensure all freight/vehs are properly documented and prepared. Note: Prepared includes unit responsibility to clean all cargo to a standard acceptable by MAMS and AGAI Foods Canada Regulations.
Passenger (Pax) Processing	Liaison with airport authorities and agencies (incl local/standing Mov Con) regarding details of ac processing and security planned to ensure CF compliance with regulations, (i.e.: determine if DND inspection meets airport regs) Confirm pax manifests. Conduct security inspections of all baggage. Issue boarding passes. Flight reconciliation	Prior to the air deployment liaison with airport to discuss the overall flow of the air operation and security/customs requirements in order to establish Blue Perimeter. Provide pax manifest to MAMS pers in order to confirm pax count matches documentation. Monitor the flow of pax processing.	

Task	MAMS Responsibilities	Mov Con Det Responsibilities	Remarks
Baggage	Inspect baggage for prohibited items to ensure it is safe for loading. Enforce directed baggage entitlements.	Instruct/confirm baggage entitlements and restrictions with unit. Weapons bundling requirements.	MAMS to coord the most appropriate location for inspection with Mov Con Det, Unit and Airport Manager (security) if applicable. Pre-processing may result. Unit/shipper to ensure value of items avail for customs purposes. If entry cards are required, the most suitable method/time to provide to personnel must be determined. (i.e.: prior to or at check-in or prior to landing). Entry Cards must be provided by carrier
Customs	Liaison w/customs and Mov Con Det to ensure strict adherence to arrival procedures and freight/pax hand over procedures. Ensure all the customs documentation for air transportation is prepared.	Liaise with MAMS (or if not present directly with customs) to confirm clearance process and assist Unit with customs clearances when required. Inform unit of any special entry requirements for customs and immigration purposes and provide items such as entry cards.	
Contracted Pax/Cargo	Prior to deployment liaise with aircraft and air terminal Reps to discuss eqpt, cargo hold dimension, container capacities. Technical requirements Liaise with the Contracting Loading Authority (Loadmaster [LM]) to determine loading sequence, procedures, restrictions, etc. Advise Mov Con Det if difficulties/conflicts with LM are affecting deployment.	Monitor process and liaise as necessary to ensure efficiency of operations and that contractor obligations are being met.	
Blue Perimeter	Responsible for effecting all activities within the Blue Perimeter associated with load/off load, customs, baggage, ac handling/parking.	Responsible for monitoring the CF air flow on behalf of J4 Mov to ensure airlift priorities are adhered to. Responsible to monitor contractor performance to ensure compliance with contract specification	Note: Monitoring of the air transport activities by the Mov Con Det may take place on both sides of the "blue perimeter."

COMMUNICATIONS

1. **J4 Mov.** The NDHQ J4 Mov elements will require the following communications equipment and connectivity:
 - a. secure and unclassified voice/data link, nationally and internationally;
 - b. access to the Allied Deployment and Movement System (ADAMS) NATO movement planning tool;
 - c. access to the Strategic Message Switching System (SMSS);
 - d. access to the Internet and DND intranet; and
 - e. cellular phones for key personnel away from the NDMCC;
2. **4 CFMCU.** HQ 4 CFMCU requires instantaneous world-wide voice and data communication through:
 - a. secure and unclassified voice/data link;
 - b. access to the SMSS; and
 - c. access to the Internet; and
 - d. cellular phones for key personnel.
3. Deployed Strategic Movement Control (Mov Con) Dets will require instantaneous world-wide voice and data communication through:
 - a. integral deployable secure voice/data link within Canada;
 - (1) in North America, cellular phones (and accessories for data link) as required; and
 - (2) outside North America, satellite phones (and accessories for data link) as required;
 - b. access to unclassified voice/data link within Canada, through a supporting base or leased facilities;
 - c. access to the SMSS through a supporting base;
 - d. cellular phones/pagers on the basis of two per Mov Con Det, assuming the deployment location can support these items; and
 - e. hand held multi-frequency, re-programmable radios for each member of a Mov Con Det.
4. **Task Force HQ Movement Co-ordination Centre (MCC).** The Task Force HQ MCC will require:
 - a. secure and non-secure voice/data link back to Canada;
 - b. secure and unclassified voice/data link in-theatre;
 - c. access to the SMSS through the Task Force HQ; and

- d. cellular phones/pagers assuming the deployment location can support this device.
- 5. **Mov Con Dets within Theatre.** Mov Con Dets deployed in-theatre will require:
 - a. secure voice/data link within the theatre of operations;
 - b. access to unclassified local voice/data link through lease or host nation (HN) support;
 - c. access to the SMSS through the MCC;
 - d. cellular phones/pagers for each Mov Con Det, if the deployment location can support these devices; and
 - e. hand held multi-frequency, re-programmable radios for each member of a Mov Con Det.
- 6. **Mov Con Det Message Address.** Individual message addresses, for deployed Mov Con Dets/Liaison Officers (LO), will be determined by CF JHQ through the Joint Signal Regiment (JSR).
- 7. **Communications Leasing Procedures.** Leasing arrangements in Canada will be initiated by J4 Mov in concert with J6 Coord and ADM (IM). In theatre, leasing requirements will be actioned by the CF JHQ Signals Officer.
- 8. **Assignment of Frequencies for Hand-held Radios.** Requests for frequency allocations to support deployed Strategic Mov Con Dets, will be initiated by J4 Mov through CF JHQ Signals Officer.

CHAPTER 3

MOVEMENT PLANNING

SECTION 1 - PLANNING PROCESS

INTRODUCTION

1. Associated with every operation, or exercise, irrespective of the size and type, there will invariably be a movement requirement that must be addressed. The successful resolution of the movement requirement is often essential to the ultimate success of the operation. The importance of producing workable, and up to date, movement plans cannot be over emphasized. Movement planning is a continual task, which involves developing new plans and maintaining and updating existing contingency plans. In this chapter all elements of the movement planning process will be examined and cross-referenced to the operational planning process (OPP), which will not be covered in detail in this manual but is available in B-GG-005-004/AF-000 (to be B-GJ-005-300/FP-000 currently under revision) Canadian Force Operations, Chapter 4.

OPERATIONAL PLANNING

2. Operational movement planning is described in terms of the requirement for, and the availability of resources.

3. **Commitment Based Planning.** Commitment based operational planning is drawn from a Commander's Mission Analysis of an enemy threat, or assigned task and the subsequent estimate process. The planned response determines the required level of Task Force and level of support needed to overcome the threat, or to accomplish the mission. These required levels might exceed that which is available to the operational commander.

4. **Capability Based Planning.** In comparison, capability based planning attempts to meet the potential or actual threat, or to respond to a contingency, based on actual force structures and strengths. The capability based planning process focuses on what can be done with the level of forces and supplies actually available, or expected to become available, during the course of an operation. Still using Mission Analysis and the Estimate Process a product of this approach is a national library of generic planning documents (or contingency plans) that describe the CF capability in a variety of operational areas.

THE OPERATIONAL PLANNING PROCESS

5. Successful planning presupposes a good organization, fully manned by a properly trained staff. Once this requirement is met the operational planning process (OPP) can be addressed and expressed in the following six sequential steps.

6. **Receipt of Task(s) - (Initiation).** The initiation step often begins with receipt of a warning order (Wng O) from a superior HQ or, at the national strategic level, in the form of a directive, issued by the CDS. During this step the political requirements, combat forces, logistic resources and strategic transportation assets can be identified for planning purposes and a Wng O issued to Staff to focus the gathering of relevant data.

7. **Orientation.** Orientation begins with Mission Analysis, and an initial estimate, and concludes with the issue of the "commander's planning guidance". This guidance should include an unrefined "mission statement" "commander's intent" and a broad concept of operations (CONOPS). These should serve as a "unifying theme" for staff effort but not restrict initiative or the exploration of creative courses of action (COA).

8. **Development of Courses of Action.** During this step "staff estimates" are conducted and courses of action (COA) developed, an information brief is produced which is then refined into the commander's decision brief. During this step COA are validated to ensure they are consistent with the commander's intent and planning guidance.

9. **Decision.** At the decision brief the best COA is selected for development into a CONOPS. This CONOPS outlines the commander's intent in the deployment, employment and support of forces. When approved by the commander (CDS at national level), the CONOPS is issued to commanders of subordinate headquarters/units/components of the Task Force.

10. **Plan Development.** This step consists of developing, approving and issuing the main and supporting plans as orders, with appropriate annexes. CF strategic plans generally describe the execution of an operation in five phases:

- a. warning;
- b. preparation;
- c. deployment;
- d. employment; and
- e. redeployment.

11. The main and supporting plans describe the operations and activities for each phase. They also define objectives and identify the forces needed to complete the mission. The supporting plans identify administrative and logistic support requirements as well as strategic transportation requirements and any shortfalls.

12. **Plan Review.** Although listed as the final step in the process, the plan review, or analysis of plans, does not just happen at the end, but throughout the planning process. This step involves regular review and revision, asking the question "has the situation changed? ", to ensure that the plans remain valid.

MOVEMENT PLANNING

13. The movement planning cycle operates in concert with the OPP. The movement staff (Mov Staff) must remain current with the thoughts of the operational staff (Ops Staff) and be aware of their future intentions. To achieve this, the Mov Staff, at each level of headquarters, should:

- a. attend periodic meetings and discussions with the Ops Staff, at NDHQ the Joint Staff Action Teams (JSATs), "bull pens or brainstorming sessions" to conduct information gathering, maintain a good working relationship and ensure from an early stage that the operational CONOPS is supportable from a movement perspective;
- b. attend initial and subsequent planning meetings for all operations;
- c. conduct timely reconnaissance and produce movement recce reports;
- d. produce movement estimates for all likely operations using existing data; and
- e. prepare, in conjunction with the Ops Staff, supporting movement plans for existing operation plans.

14. The true value of this liaison and interaction is the production of draft plans that can be used to form the basis of the final plan.

15. When it becomes evident that a specific operation is likely to take place, the validity of pre-planned staff work will need to be re-assessed and the movement plan can be adjusted accordingly. As soon as possible, after the operation is confirmed, a Wng O should be sent to all likely participants. During this phase the Mov Staff is to:

- a. continue to attend co-ordination meetings with Ops Staffs;
- b. produce a new or revised movement estimate;
- c. prepare a new or revised movement plan;
- d. prepare movement orders (Mov O); and
- e. issue a movement warning order (Mov Wng O) if not included within the operational warning order (Ops Wng O).

16. Once the Wng Os, operation order (Op O) and Mov O have been issued, the Mov Staff are responsible for:

- a. movement monitoring;
- b. identifying and planning amendments as required; and
- c. preparation of a sustainment plan.

17. ADAMS. For NATO operations and exercises, national movement plans will be communicated and co-ordinated using the Allied Deployment And Movement System (ADAMS). From a CF perspective, ADAMS will be maintained and operated at J4 Mov, NDHQ, which will be solely responsible for the operation of the system and the integration and communications with NATO. ADAMS policies and procedures are contained in separate ADAMS instructions authored and issued by NATO.

SECTION 2 - PLANNING CONSIDERATIONS

PLANNING THE MOVE

1. From the general planning factors the main factors on which movement planning depend are:
 - a. the size and composition of the proposed Task Force;
 - b. the transport resources available, in terms of speed and capacity;
 - c. the threat to those transport resources and terminals; and
 - d. time and space.
2. This data will seldom be available in sufficient detail at the outset of the planning stage and will be subject to continual amendment. From the beginning, the Mov Staff must obtain, and keep up to date, accurate information on the size and composition of the Task Force, the transport resources available and the threat. Without this data no real progress in movement planning is possible.
3. The key document for Task Force movement planning is the Task Force Movement Table (TFMT). Development of the TFMT, which is based on the Table of Organization and Equipment (TO&E) produced by the Ops Staff, is a Task Force HQ responsibility. The TFMT identifies the composition of the Task Force (from the TO&E) in terms of movement elements, sorted into priority for movement in accordance with the Task Force Commander's deployment plan. Changes to the TO&E will invariably affect the TFMT and have an effect on the resources required for the move. This may involve a demand for more resources, less resources or for resources of a different type.
4. Delays in completing the TFMT may lead to a delay in the departure of the Task Force; extra transport resources demanded at the last moment are normally difficult to acquire, more expensive and may not be available at the time required. The Mov Staff and the Ops Staff must work closely together on this problem with a view to producing the final TO&E and subsequent TFMT at the earliest possible moment.
5. To determine the transport resources required, the Mov Staff must be involved in every stage of the OPP with the aim of:
 - a. introducing any practical resource restrictions into the Task Force plan early. These restrictions could include difficulties with the provision of sufficient, or appropriate, transport resources, restrictions to loading at the POE or unloading at the POD. A provisional allocation of resources is made when the move is first considered and subsequently amended as the plan evolves. It is important to ensure that the Ops Staff are made aware of any transport resource constraints while preparing Task Force plans; and
 - b. translating the operational plan into a movement plan which conforms to the Task Force Commander's intentions and also exercises maximum economy in the use of transportation resources.
6. The critical nature of the TFMT cannot be overstated. J4 Mov relies on TFMT accuracy when bidding, or tendering, for heavy lift aircraft and for sea lift capacity. The accuracy of the TFMT, in turn, depends on thorough mission analysis of the overall requirement by the Ops and Mov Staff working in concert.

PLANNING FACTORS

7. It is not practical to list, or explain, all of the problems that may arise, nor suggest solutions to them. However, there are certain problems that regularly arise in operational deployments that may be overcome, or avoided altogether, if the staffs responsible are able to anticipate them.

a. **Characteristics and Limitations.** Each mode of transport (MOT) to be utilized must be carefully considered against the Task Force that is to be moved. There must be a balance between the requirements of the Task Force and the transport resources available to execute the movement. The nature of a task or mission, or perhaps the characteristics of a specific piece of equipment or vehicle, may necessitate the use of a particular MOT;

b. **Priorities of Movement.** The Task Force Movement Officer (TFMO) must produce a TFMT listing the components of the Task Force, the priority of movement and order of arrival in theatre. J4 Mov Staff must ensure that priorities are followed and must advise J3 Ops Staff and the TFMO of any conflicts or problems which could compromise the established priorities;

c. **Landing a "Balanced Force".** Although responsibility for maintaining a balanced force rests with the Ops Staff, this does not free the Mov Staff from responsibility, when converting the TFMT into the movement plan, for presenting alternatives or identifying solutions to problems. The implication of last minute, sometimes seemingly minor TFMT amendments, can be that substantial amendment to the embarkation plan is necessary. In the worst case, an existing plan may be scrapped entirely and a new one prepared. The Mov Staff must be sure that all the elements of a "balanced force" are included in the TFMT and that nothing has been overlooked; and

d. **Distribution of Assets.** Coupled with the requirement to land a balanced force, there is also a need to ensure that the Task Force assets are distributed throughout the transportation flow. For example it would be unwise to load all the main battle tanks in one ship, as the loss of that ship could result in a serious problem for the landing force.

TIME AND SPACE PLANNING

8. When elements of a Task Force move from their home/peacetime location, the "Home Base", to a "Final Destination" in an operational theatre, their movement involves planning by several echelons of command, and normally includes stops at several intermediate locations. The essential items of movement information are first considered and identified during the initial planning phase. Figure 2-1 illustrates the division of responsibilities for movement and identifies the various bases and intermediate locations through which a Task Force may move. Chapter 2 Section 1 paragraphs 6-22 go on to explain the purpose of and movement responsibilities within those bases/locations.

9. The following paragraphs, and Figure 3-1, follow the flow of the Task Force through these "key" locations, and explain how they are routinely used in detailed time and space planning. The actual calculation of dates, and the determination of locations used in detailed planning, begins with, and works backwards from, the Final Destination (FD):

a. **Final Destination.** The FD is the assembly area where a unit, formation or capability is required to be ready for mission execution in accordance with the Commander's CONOPS. Movement to the FD is likely to require domestic, strategic and operational transportation resources. Arrival at the FD should not be equated to coming into direct contact with an opposing force; rather, arrival at the FD places forces within their intended area of operation (AO). For example, the FD for a supply unit may be many miles from direct contact with the enemy.

b. **Assembly Area.** In an Assembly Area vehicles are re-fuelled, minor repairs are completed, final briefings and training completed, vehicles and trailers are loaded with combat supplies and vehicles/equipment are formed up in unit packets and directed to their FD.

- c. **Staging Area.** If it is a considerable distance from the Marshalling Area to an Assembly Area there may be a requirement to establish and use a Staging Area (or Staging Areas). A Staging Area facilitates: vehicle re-fuelling; minor repairs; food and rest; and consolidation of vehicles/equipment into unit packets before movement to the Assembly Area.
 - d. **Marshalling Area.** Normally passengers (pax) will move strategically by air and their vehicles and equipment will move by sea. A marshalling area is the location where personnel are reunited or "married up" with their vehicles and equipment prior to moving forward on the Lines of Communication (LOC/L of C) in-theatre.
 - e. **Port of Disembarkation.** The Port of Disembarkation (POD) is the airport (APOD) or seaport (SPOD) within, or close to, the AO where the strategic transportation requirement for forces is completed, generally a large airport or seaport. In some cases, the POD and FD could be the same place e.g. an airfield in theatre may be both the APOD and the FD for a CF18 squadron.
 - f. **Forward Staging Base.** Depending on the distance from a POE to POD it may be necessary to establish a Forward Staging Base along the LOC/L of C. The purpose of a Forward Staging Base is to facilitate refuelling, crew changes and re-configuration of the Task Force as may be required.
 - g. **Port of Embarkation.** The Port of Embarkation (POE) is the point where strategic air (APOE) or sea (SPOE) transportation begins.
 - h. **Mounting Base.** The Mounting Base is the point where the Task Force gathers for final preparation prior to loading at the POEs. In some circumstances it may be established at the POE.
 - i. **Assembly Base.** Individual units, or components of a Task Force, often consolidate at an Assembly Base in order to complete movement within Canada to the Mounting Base.
 - j. **Staging Base.** Given the sheer geography of Canada it may be necessary to establish a Staging Base, or bases, between any of the Home Base and POE locations.
 - k. **Home Base.** As the name suggests this is the place where individual units, or components of a Task Force, normally reside and from which movement, and therefore movement planning, commences.
10. Movement planning timings are important as they provide good milestones against which the actual movement of forces can be monitored. The plan must therefore consider the following key timings:
- a. **Commander's Required Date (CRD) (sometimes Operationally Ready Date [OPRED]).** It is essential to determine what exactly the Commander's Required Date [CRD] means. The Task Force must arrive and unload at its FD by CRD/OPRED in order to be effective. It is not enough just to deliver a unit to its FD; sometimes it must arrive before the CRD/OPRED to ensure that any final work up training can be conducted. Co-ordination is essential as arriving too early may create an unnecessary logistic support problem; too late may mean that the forces cannot affect the outcome of the operation.
 - b. **Arrival Dates.** For strategic movement, the CRD/OPRED leads to the determination of some important interim dates. To meet the CRD/OPRED units must arrive at the POD between an Earliest Arrival Date (EAD) and the Latest Arrival Date (LAD). The EAD is the earliest a planner can allow the first element of personnel or equipment to off-load from strategic transportation at the POD. The LAD is the latest date for the last element to arrive at the POD, and complete off-loading, in time to arrive at the FD by the CRD/OPRED. The transit time required between the POD and FD is the difference between LAD and CRD/OPRED.

c. **Load Dates.** At the other end of the route, the primary concern is with scheduling movement between the Home, Assembly Bases and Mounting Base. The Ready-to-Load Date (RLD) is the earliest date a unit is available at the Mounting Base for onward transportation to the POE. The Available-to-Load Date (ALD) is the earliest time transportation resources are available for the unit to begin loading at the POE. The Earliest Departure Date (EDD) is the earliest date that the shipment is ready to depart from the POE. These dates are calculated backward from the EAD after considering strategic deployment transit times, including any requirement for a Forward Staging Base.

11. The planning process, for moving the Task Force to its FD, must begin by identifying the CRD/OPRED and working backwards along the LOC/L of C. The time it will take to get from the POD to the FD is determined by allowing sufficient time to enable units to reform in the marshalling area and transit the in-theatre LOC/L of C, through any Staging or Assembly Areas. Ideally, units must be "flowed" into theatre so that both air and sea elements arrive simultaneously. Since most units cannot arrive in entirety on one day, there is an EAD-LAD window in which the unit will arrive in theatre and still satisfy the CRD/OPRED. Subtracting the time to perform strategic lift between POE and POD from those dates, results in the deadline required to complete assembly at the Mounting Base for onward shipment to the POE. By continuing to work back from the Mounting Base, the departure date from the unit's home base can be calculated.

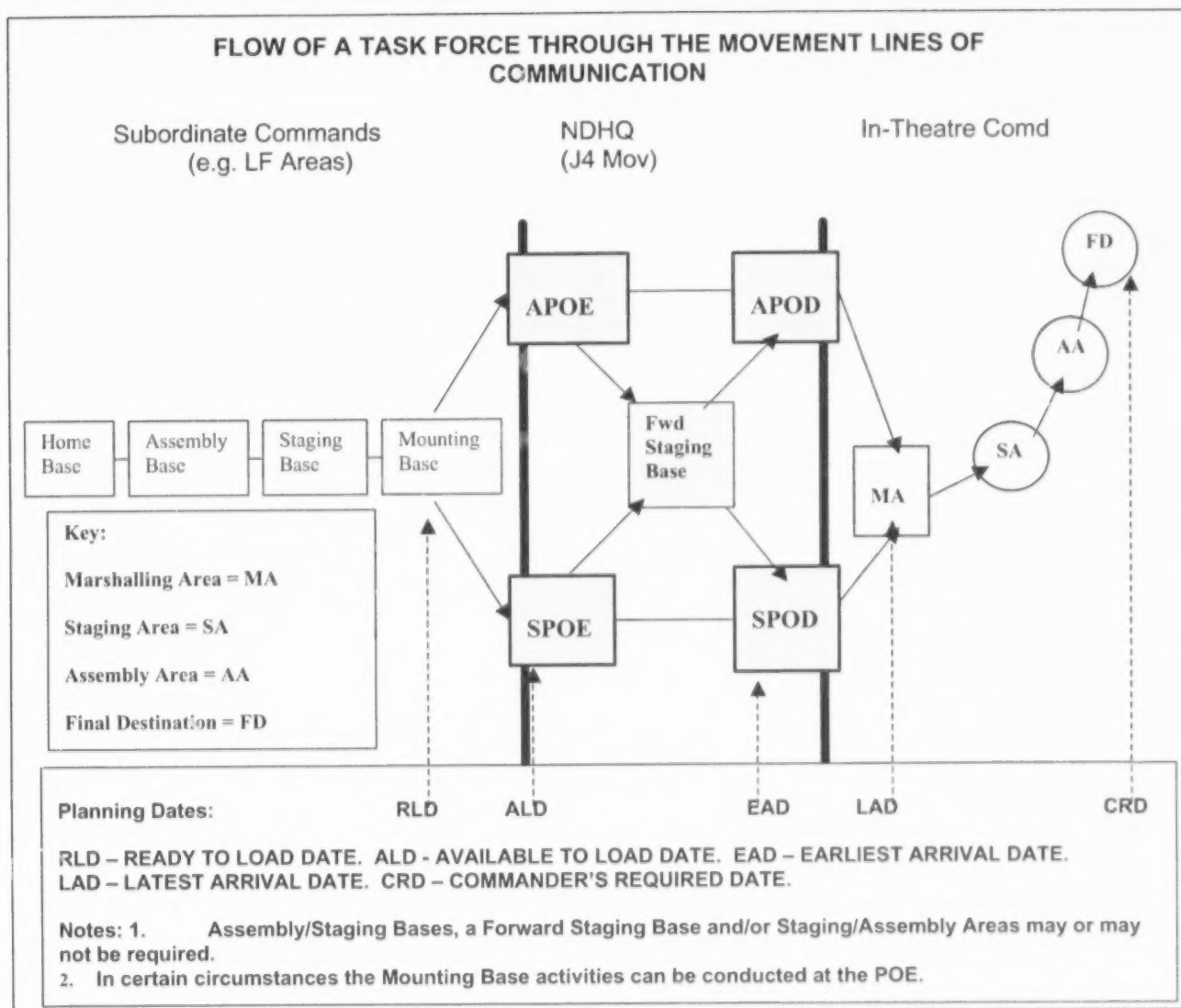


Figure 3-1 Flow of a Task Force through the Movement Lines of Communication

SECTION 3 - PLANNING INFORMATION

MOVEMENT INTELLIGENCE

1. Gathering pertinent movement intelligence is vital to the success of an operation. Movement intelligence comprises information relating to strategic and operational routes, terminals and transportation resources. Sources of this information include:

- a. Operation Plans;
- b. Movement Staff Tables;
- c. Movement Reconnaissance Reports. Annex B to this chapter provides the formats for various terminal reconnaissance reports;
- d. Movement Planning Co-ordination Conferences; and
- e. Civil carriers.

MOVEMENT STAFF TABLES

2. The next step in successful movement planning requires identification of everything that is to be moved. This is accomplished by means of movement staff tables. The two primary sources of information are the Unit Movement Staff Table (UMST) and the Task Force Movement Table (TFMT). UMSTs are prepared for each unit (including Headquarters) deploying on an operation. Where a Task Force is to deploy the TFMO compiles the individual UMSTs into the TFMT. Further detail on the content and preparation of these staff tables is contained in Annex C. The UMSTs are built for specific operations, from Unit Staff Tables (UST), which are to be regularly and accurately maintained during peacetime. J4 Mov has developed the Joint Establishment and Movement Management System (JEMMS) software application to provide electronic assistance in the production of USTs/UMSTs/TFMTs. Details are available on the J4 Mov Intranet Website.

SUSTAINMENT INFORMATION

3. The Deployment Phase of an operation, or exercise, can often overlap with the Sustainment Phase. Lift requirements to sustain a Task Force vary considerably, the following information must be ascertained:

- a. type of operation, planned duration, the threat and resultant security requirements;
- b. location;
- c. size and composition of the Task Force and speed of build up;
- d. season (climatic conditions);
- e. intensity of activity; and
- f. resource availability, that which is to be moved to theatre and also that available in theatre from host or lead nation (HN/LN) sources.

4. The Int Staff will determine the threat and the Ops Staff the resultant security requirements. The Ops Staff will determine the task requirement and the Logistics (Log) Staff will translate this requirement into a level of sustainment and a staff table. This staff table will provide the Mov Staff with the weight and cube of the projected daily resupply. The lift requirements for the sustainment phase can then be factored into the total movement requirement by the Mov Staff.

REDEPLOYMENT INFORMATION

5. The redeployment phase of a major operation can be the time when the Mov Staff has the greatest difficulty. There can be confusion caused by the rush to return home and accurate information can be difficult to obtain. Staff tables are required at the unit level in order to determine lift requirements, priority of movement and back-loading plan. The staff procedures for redeployment are essentially the same as for deployment, but movement is in the opposite direction. Following a protracted deployment, it may be preferable, assuming manpower is available, to replace, or at least augment, the Movements Organization in theatre. This will allow the considerable redeployment challenges to be staffed by a fresh team.

SECTION 4 - MOVEMENT ESTIMATE AND PLAN

MOVEMENT ESTIMATE

1. Once planning information is gathered, a movement estimate is completed. It will identify a series of options, courses of action (COA), that apply to a given situation. The preferred option/COA is selected which provides the basis for the movement plan; from this plan a Mov O is written.
2. The movement estimate follows a similar pattern to other estimates and is characterized by brevity, clarity, relevance and accuracy. A sample movement estimate format is at Annex D.
3. Although Mov Staff are experts on numerous mode of transportation (MOT) characteristics and capabilities, they do not necessarily possess an in-depth knowledge of MOT operations. Mov Staff should never hesitate to consult with the experts from the MOT agencies on specific matters that may require clarification during development of the movement estimate.
4. The outline plan, which follows the movement estimate, must be checked to ensure that it is feasible. A "staff check" must be conducted to ensure the mathematical assumptions are correct and that the MOT usage rates are accurate. For completeness tables of conversion factors are at Annex F.

MOVEMENT PLAN

5. The completion of the movement estimate process leads logically to the development of the movement plan. Much of the information used in the estimate is used again and expanded upon in the plan.
6. A movement plan is required in order to specify how all the movement resources are to be tasked. This allows all involved, particularly subordinate Mov Staffs, transport and terminal agencies, to continue more detailed planning. A good movement plan delegates to the maximum extent possible without violating the first principle of movement.
7. A movement plan must cover the following points:
 - a. the Mission;
 - b. how the Mission is to be met (i.e. concept of movement);
 - c. details of essential tasks and who will carry them out; and
 - d. sufficient information to permit recipients to execute the plan.
8. A movement plan is only one part of the larger operational support plan. It normally appears as an annex to the main plan. Likewise the Mov O is often an annex to the main Operation Orders (Op Os).
9. The format of the movement plan, and subsequent orders, is similar to most other plans and orders. The main differences are the subjects covered in the situation and execution paragraphs. The following are examples of these subjects:
 - a. **Situation.**
 - (1) background information from the operational and administrative plans/orders including an outline of what is to be moved;
 - (2) relevant notes on environment, terrain, facilities available and restrictions as they affect movement;

- (3) final capacity estimates; and
- (4) attachments and detachments, including civil organizations involved in the move.

b. **Execution.** The contents of the execution paragraphs will vary greatly depending on the situation and the phase of movement. Information required for the deployment phase, for example, is as follows:

- (1) concept of movement (general outline of the plan);
- (2) stages of movement;
- (3) concentration of units, equipment and stores;
- (4) movement to Mounting Bases;
- (5) movement along the deployment route from Mounting Base to POD;
- (6) responsibilities for reception, staging and onward movement (RSOM);
- (7) the movement, deployment, location, strength and areas of responsibility, tasks for Mov Staffs, movement control (Mov Con), transport and terminal units, military police and all other involved organizations;
- (8) responsibility for reconnaissance of movement facilities;
- (9) variations to Standard Operating Procedures (SOPs) made necessary by the peculiar circumstances of the operation; and
- (10) any preparatory engineering work needed to improve terminals, route capacity, assembly, mounting and staging bases/areas.

SECTION 5 - ORDERS

WARNING ORDER

1. Once the planning process is completed and implementation is imminent, the plan is put into action by a series of orders; the first of which is the Warning Order (Wng O).

2. Wng Os are used to do exactly what their title suggests, that is, to warn all concerned of likely, impending activity. In the movement context they provide the means by which Mov Staff, Mov Con units, transport and terminal agencies are warned of the likely future issue of a Mov O or instruction. Although the Mov Staff prepares the Mov Wng O, it is normally the Ops Staff who issues it. For security reasons the Wng O should be issued on a "need to know" basis.

3. In order to provide staffs the maximum time for planning and liaison, Wng Os should contain all, or most, of the following information but should not be held up for the lack of any particular detail; timely issue is vital to achieve prompt concurrent planning at all levels:

- a. units to move;
- b. mission/task or reason for move;
- c. destination;
- d. no move before (NMB) time;
- e. likely Assembly, Staging or Mounting Bases;
- f. likely APOE/SPOE and APOD/SPOD;
- g. type of move;
- h. scale of equipment;
- i. phases of movement;
- j. nomination of TFMO;
- k. requirement for movement information from units (UMSTs, TFMTs); and
- l. date for the completion of move.

MOVEMENT ORDER

4. Operation and movement orders (Mov Os) are the instruments used by the staff to initiate movement. It is important to note that the Mov Staff does not initiate movement. This is the prerogative of the appropriate commander; Mov Os are the means by which authorized movement is put into effect.

5. Mov Os are prepared by the Mov Staff on behalf of the commander and released by the Ops Staff, often as an annex to the Operation Order (Op O). For example, the J3 Ops Staff, on behalf of the Deputy Chief of Defence Staff (DCDS) will sign off a National Movement Order.

6. Mov Os are prepared in order to:

- a. inform all headquarters involved, how the move is to be accomplished;

- b. task the Task Force (including subordinate supporting headquarters if necessary), the supporting movements organization and mode operators; and
 - c. confirm with all other "action" addressees, details that have been previously arranged.
7. As with any other type of military order, Mov Os must be:
- a. accurate;
 - b. as brief as is consistent with clarity;
 - c. clear and unambiguous;
 - d. capable of execution; and
 - e. received in time to be actioned in a timely manner.
8. The format of a Mov O essentially follows that of the normal Operation Order (Op O). It can vary considerably in content depending on, the detail required and, such factors as:
- a. the completeness and accuracy of the information contained in the Mov Wng O;
 - b. the time available before movement commences;
 - c. the complexity of the plan;
 - d. the security of the operation; and
 - e. the amount of planning and activity to be carried out by subordinate headquarters and units.
9. A Mov O may be issued in the form of a message; authorizing the implementation of a previously issued plan and notifying appropriate amendments. The format for a Mov O issued by message is at Annex E. In complicated moves, or where movement resources are in short supply, there is an increased requirement to centralize control. It follows that as centralized control increases, so also does the need for increased detail in the Mov O. Resource availability will dictate the level of detail required.
10. In general terms a Mov O will usually consist of the main text outlining tasks, responsibilities, broad timings, and subjects common to all MOT involved. The detailed instructions and timings relative to a particular MOT may be issued as annexes, i.e. sea, air, rail and road as applicable. There may also be a requirement for a separate order for the movement of operational stocks from depots; again this may also be included as an annex. Each of these annexes will be as self contained as possible and will consist of a main text supported by movement tables.
11. Every effort must be made to ensure that frequent amendments are not required. Therefore, the timing of release of a Mov O should be as late as possible, compatible with allowing adequate time for executing the order. A comprehensive Wng O will assist in the timely release of the Mov O.

MOVEMENT CONFERENCES

12. It is vital to the success of any movement operation, for there to be constant dialogue between the components of the Movement Organization planning and executing the move, representatives from the transportation agencies supplying the transport (when possible) and the forces being moved. Accordingly, at every level, there must be movement conferences and briefings as part of operational preparation. At the strategic level, 4 CFMCU is tasked to convene movement conferences, attended by J4 Mov Staff, transport agency representatives and representatives of the formation being moved.

SECURITY OF INFORMATION

13. Security is a subject that must be considered during all phases of movement planning. The very nature of movement makes it extremely vulnerable to breaches in security. Mov Staff should be brought into the planning of an operation at its inception, if the potential for problems is to be minimized. A good example of this is J4 Mov participation in the daily Joint Staff Action Team (JSAT) conferences in NDHQ and any resultant "Tiger Team" planning sessions.

14. As planning progresses more and more people become involved, including civilian service providers. When the implementation phase begins and large numbers of personnel, equipment and cargo move to mounting bases and POEs, the security problem is most critical. In conjunction with the overall security plan for a given operation, which is designed to conceal both numbers and destinations of personnel, there needs to be strict adherence to security standards by Mov Staff.

FORCES DEPLOYMENT PLANNING SEQUENCE OF EVENTS

Serial (a)	Event (b)	Unit/FMN (c)	1 CAD (d)	J4 Mov (e)	Remarks (f)
1	Receive NDHQ Warning Order (Wng O) or Recognition of possible deployment of a Task Force.	a. Issue own Wng O. b. Check accuracy of UST. c. Prepare UMSTs (unit) and TFMT (TFMO) and fwd to J4 Mov. d. Determine quantities of ammunition & fuel. e. Pass TFMT to NDHQ/J4 Mov as soon as possible with indication of preferred POE and times (TFMO).		a. Check TFMT and do quick assessment of lift requirement. b. Place formation/unit at certain degree of notice to move. c. Liaise with 1 CAD & DLBM TM 6. d. Investigate avail of potential tn resources.	
2	Draft TFMT arrives NDHQ/J4Mov.	a. Unit requests special factors such as preferred time interval between recce party, advance party & main body. b. Unit prepares personnel, e.g. pay, records, immunization, personnel equipment issue. c. Unit prepares personnel & equipment likely to move by air so it will be able to react quickly.	a. Learns of preferred timing of recce parties, advance parties & main body from TFMT. b. Appoint MAMS officer or liaison officer (LO) unit/formation (LO not despatched until later).	a. Confirm suitability of TFMT & timings of recce & advance parties. b. Advise unit/fmn, of possible resources available, i.e. civil air/service air & sea lift. c. Confirm methods of movement consult with 1 CAD/DLBM TM 6 as necessary.	

Serial	Event	Unit/FMN	1 CAD	J4 Mov	Remarks
(a)	(b)	(c)	(d)	(e)	(f)
		d. Unit collects weapons bundling materials for CC150 etc.		d. NDHQ/J4 Mov, advise unit of probable methods of movement. e. Request NDHQ J3/J1 to identify accompanying reserves by type, quantities and locations so they can be included in the movement plan.	
3	Final TFMT arrives.	a. Unit continues general preparations for movement and detailed preparations for personnel & equipment known to be moving by air.	a. Prepare flow plan. b. Confirm payload & basic timings to J4 Mov. c. Departure Airfield Support Services Officers (DASSOs) at airheads not served by 1 CAD, e.g. Halifax or Victoria	a. 1 CAD HQ provided with copy of TFMT. b. Arrange lift resources and advise unit/fmn of movement schedule including earliest M-hour for each method of move to include: (1) Air, sea & rail schedules, report timings. (2) Appointment of 4CFMCU to APOE/Ds and SPOE/Ds, c. Issue Wng O. Include all available information such as mix of aircraft, probable embarkation points, etc.	

Serial (a)	Event (b)	Unit/FMN (c)	1 CAD (d)	J4 Mov (e)	Remarks (f)
4	NDHQ issue Op O / Movement Order (Mov O).	a. General preparations continue. Issue own Mov O.	a. Issue 1 CAD Op O incl flow plan.	a. Issue Mov O incl: (1) Airflow plan. (2) Rail plan & schedule. (3) Sea plan & schedule. (4) Clarification of Movement Control (Mov Con) Organization. (5) Special instructions for preparation of dangerous goods. (6) Authority for tactical / contingency loads. b. Mov Con Dets may join ALCE for move with 1 CAD positioning flights.	
5	LF Area/Bde/ Subordinate HQ Mov O	a. UEO/MAMS prepares detailed ac loading table (copy to J4 Mov by FAX, COM or Msg). b. Unit prepares equipment for move by air, rail, or sea. Include inspection at unit.	a. Position ALCE, slip crews, MAMS & Mov Con Dets.	a. Monitor & respond to unit/formations.	

Serial (a)	Event (b)	Unit/FMN (c)	1 CAD (d)	J4 Mov (e)	Remarks (f)
		c. Loading tables must be forwarded to destination points including updates as amendments occur.			
6	Unit/formation commences deployment.	a. Unit Embarkation Parties (UEP) to APOE/SPOE. b. Final preparation & inspection point established up. c. Upon call forward by the Mov Con Org, Unit moves to APOE/SPOE.	a. DASSO arranges accommodation & feeding for unit/formation APOE parties & transients. b. Final pre-loading inspection.	a. Monitor and respond to unit/formation. b. Monitor and respond to ECS/1 CAD requests.	

MOVEMENT RECONNAISSANCE REPORTS

1. The aim of a movement reconnaissance (recce) report is to establish the strength, weaknesses and viability of the terminal being studied. No facility can be looked at in isolation; the supporting infrastructure, reception and distribution means are equally important. Ideally each recce should be conducted with a mode of transport (MOT) expert available. For example, 1 CAD should provide personnel for an airfield recce.
2. The format for a recce report is provided and it needs to be supplemented with the relevant appendices to this Annex which contain detailed headings for each major type of facility. They are not designed to be followed rigidly but provide a useful aide-memoire.

RECONNAISSANCE REPORT

1. To: (*Authority requesting report*)
2. From: (*Rank, name and unit of person making report*)
3. Maps: (*In addition to normal maps include specialist maps, e.g. port plans, charts etc*)
4. Publications: (*e.g. Facility handbook, intelligence briefing*)
5. Date Time Group: (*when report was dispatched*)
6. General Information
 - a. Object of the recce, name, location and general description of site (incl grid reference).
 - b. Dates and times of recce.
 - c. Controlling authority at site, names and telephone numbers.
 - d. Security and defence of the location.
 - e. Summary of main points.
7. Detailed Information

See following appendixes for applicable headings

8. Enclosures

Overlays, plans, sketches, photos etc to be attached to the report.

RAILHEAD

Detailed Information

1. **Train Unloading Areas.**
 - a. ramp availability (end or side);
 - b. platform length and availability;
 - c. suitable for loading/unloading vehicles, heavy equipment, personnel, stores;
 - d. width of pavement beside track; and
 - e. vehicle access incl holding and cross-loading areas.
2. **MHE Availability.** Quantity (eqpt and ops) lift capacity and time per lift.
3. **Cargo Holding Area (if ground dumped).** Type and capacity of storage area, dangerous cargo restrictions, sea container parks.
4. **Modes of Transport (MOT) Available for Clearance.**
 - a. quantity and capacity of each mode i.e. road/inland water way (IWW) ,separate entrance and exit roadways preferably;
 - b. height and weight restrictions;
 - c. traffic circuits and routes (including holding and admin areas) and traffic control;
 - d. turnaround time from railhead to first destination (this will help determine the practicality of the mode);
 - e. current and potential utilisation of commercial transport; and
 - f. operating requirements (fuel, maintenance, etc); and
 - g. security plans.
5. **Restrictions.** Imposed by the effects of climate, weather and the time of day on operations.
6. **Railway Carrying Capacity.**
 - a. availability of locomotives (including shunting) and rolling stock;
 - b. train carrying capacity;
 - c. number and gauge of tracks/sidings/passing loops/turntables;
 - d. number of train loads station can hold clear of running lines;
 - e. number of freight rail cars that can be handled simultaneously;
 - f. station suitable for handling passengers, vehicles or materiel;

- g. Sidings/Spurs:
 - (1) capacity (see Note 1);
 - (2) other means available which can be used as sidings;
 - (3) level and/or sloping;
 - (4) shunting neck available (see Note 2); and
 - (5) width of pavement beside sidings (see Note 3).
- h. limitations on rail movement.

7. **Marshalling Areas:**

- a. required for temporary storage of materiel;
- b. required for transport; and
- c. for personnel.

8. **Administrative Facilities:**

- a. fuel, water (drinking and wash-down), power and lighting;
- b. communication systems;
- c. accommodation areas including office accommodation for Port Mov Con Det etc;
- d. station buildings;
- e. medical facilities; and
- f. available civil labour (particularly skilled tradesman).

Load Specific Requirements

9. **Vehicles (Tracked and Wheeled)** will require;

- a. an end loading or side loading dock and ramps;
- b. hard standing at entrances and exits from the ramps; and
- c. sufficient manoeuvre space.

10. **Ammunition and Packed POL** will require;

- a. sufficient MHE for cross-loading and working inside rail cars;
- b. sufficient temporary storage space with hard standing to permit separation of dangerous commodities (ideally the yard or station should be used for ammunition only or for packed POL only; and

- c. sufficient room for vehicles to manoeuvre.
11. **Personnel** will require;
- a. Covered platforms/shelter from the elements;
 - b. adequate lighting; and
 - c. drinking water and latrines.
12. **Ambulance Trains.** In addition to the requirements for personnel, in para 10 above, ambulance trains will require;
- a. suitable access for cross-loading from ambulances; and
 - b. under the terms of the Geneva Convention, ambulance railheads must be situated as far as possible from other traffic. This may limit the use of the railhead whilst ambulance trains are being operated.

NOTES

1. For every two trains handled at a rail terminal during a 24 hour period, one holding siding, preferably a loop, is required in addition to the running lines (main line with loop on a single line). This figure depends on the rate at which trains are unloaded.
2. The shunting neck is equal in length to the longest siding plus locomotive to allow the yard to be shunted quickly and without hindrance.
3. Roadway beside sidings must be wide enough to enable all sidings to be served simultaneously without congestion:
 - a. i.e., for 2-1/2 ton truck-requires at least 70 ft width between pairs of sidings and 40 ft for single siding; and
 - b. for 5 ton truck-requires at least 120 ft width between pairs of sidings and 60 ft for single siding.

PORT TERMINAL

1. A Port Recce Report should show all relevant information about a SPOE/SPOD. The following headings are suggested, but should not be regarded as exhaustive. Any relevant information that affects the potential military operation of a port should also be considered and included.

Detailed Information

2. **General Characteristics of the Port:**

- a. terminal plan,
- b. chart of sea approaches,
- c. layout of port,
- d. road, rail, waterway approaches and facilities, including nearby airport,
- e. fixed terminal facilities (buildings, uncovered storage, etc); and
- f. prevailing weather conditions, frequency of gales, fog, ice, or storms (the most important factor is winds) and any restrictions imposed by the effects of climate, weather and the time of day on operations.

3. **Anchorage.** Area, location, depths, nature of bottom and mooring buoys, "turnaround time" berth to anchorage, action of currents and effects of wind.

4. **Port Engineering** - Construction details of -

- a. quays,
- b. piers,
- c. jetties,
- d. locks,
- e. bridges, and
- f. port buildings.

5. **Dredging.** Details of the adjacent seabed are required to include any ship-turning areas.

6. **Alongside.** To include the following:

- a. lengths and widths of vessels accepted, depth of channel and, basins and berths (alongside);
- b. RORO ramp details;
- c. tidal ranges and anomalies;
- d. weather and seasonal variations;

- e. available working length at berths and width of quay;
- f. road and rail access to berth;
- g. number of pilots and pilot boats, location of pilot station; and
- h. harbour boats (tugs, lighters etc), type, size, capacity and availability.

7. **Special Berths and Cargoes.** Special cargoes are usually handled at berths set aside for that purpose. Various terminals or parts of terminals may be completely equipped for specific cargo handling and such ports, or parts of ports, may be unsuitable for conventional break bulk cargo.

8. **Lighterage Berths.** Almost any otherwise unused part of a dock can be used for the discharge of lighters. Given a yardstick of 30m of quay with a water depth of 2 m for each lighter, discharge capacity will depend entirely on dock space and the availability of MHE to service Lighterage (mobile cranes, forklifts, etc.);

9. **Storage Areas.** Whether covered, refrigerated or open, locations, size, access, present usage and availability to CF.

10. **Safety and Environmental Policy.** Outline of respective port and environmental safety regulations, and programmes, and the likely effects on discharge/loading operations if fully implemented. Check with local authorities if special environmental requirements are necessary when loading or off-loading (discharging) ships.

11. **Dangerous Goods.** Storage, compatibility and handling facilities. Outline of respective port dangerous goods handling regulations and possible effects on discharge operations if fully implemented, (i.e. NEQ limitation).

12. **Terminal Equipment.** Availability to CF, including operator availability, types and capacities and Safe Working load (SWL).

- a. fixed (Quay) cranes;
- b. mobile cranes;
- c. gantries and conveyors; and
- d. cargo handling gear and other Materiel Handling Equipment (MHE).

13. **Administrative Facilities.** Information on:

- a. water availability for ships and domestic port use (both drinking water and wash-downs for vehicles etc);
- b. lighting and power, supplies and voltages on quays and working areas, floodlighting available;
- c. civil labour availability and organisation;
- d. communications, telephone, radio, fax, telex;
- e. fuel bunkering, fuel barges and berths, sludge barges and governing regulations;

- f. refuelling facilities for support vehicles; and
 - g. materiel supply - lumber, cable, rope, packing material, tie-down and lashing hardware.
14. **Customs, Health, Immigration and Agriculture.** Must include:
- a. location;
 - b. contact names and telephone and fax numbers; and
 - c. charges, documentation and any special requirements.
15. **Road Rail and IWT Access.** Facilities within port, hinterland network, holding and cross-loading areas, limitations on movement in port.
16. **Modes of Transport (MOT) Available for Clearance.** To cover:
- a. quantity and capacity of each (MOT);
 - b. turnaround time port to first destination;
 - c. traffic circuits and routes; and
 - d. restrictions imposed on clearance transport by port/terminal authority and customs.

Estimation of Port capacity

17. Hard and fast calculations of port capacity are unrealistic because there are so many variables to consider; however, some useable planning guidelines are as follows:
- a. The length of the berth generally governs the number of points at which ships can be unloaded. Tonnage handling capacity over any given berth depends on its width, its facilities, and the nature of the cargo. An acceptable guideline is to assess the capacity as being 180 tonnes (200 short tons) per hatch 24 hour (hr) period for a berth apron with a minimum width of 10m (10 yds).
 - b. 180m is used as the figure for berthing length to accommodate the normal range of cargo ships with the addition of at least 18m for mooring;
 - c. The width of the apron will vary from port to port. A rail-served quay should not be less than 23m wide. Finger piers with ship berths on either side should be at least 28m wide;
 - d. Berth level above water should normally be about 2m above high water level. Berths appreciably lower than this may be susceptible to flooding; and
 - e. Berthing yardsticks:
 - (1) for berths estimated at 200m long with a 9 to 10m water depth, estimate 1080 tonnes (1200 short tons)/24 hr period,
 - (2) for berths estimated at 100m long with a 6 to 7m water depth, estimate 270 tonnes (300 short tons) /24 hr period.

- (3) for an anchorage berth, estimate 900 tonnes (1000 short tons) /24 hr period, and
- (4) for a lighter berth estimated at 35m long with a 2m water depth, estimate 270 tonnes (300 short tons) /24 hr period.

18. Assessment for Specific Operations:

a. Throughput capacity will ultimately depend upon the lowest of the following figures:

- (1) reception capacity - the amount of ships that can be handled simultaneously at berth or anchorage berths,
- (2) discharge capacity - the amount of cargo that can be discharged in a 24 hr period,
- (3) transfer capacity - the amount of cargo that can be moved from the berth to temporary storage areas in a 24 hr period,
- (4) storage capacity - the amount of cargo that can be held temporarily in open or covered storage,
- (5) clearance capacity - the amount of cargo that can be cleared from the terminal in a 24 hr period, and
- (6) labour capacity - should be assessed as being enough to operate as many ships/vessels as are being handled in the terminal;

b. Capacity Assessment:

- (1) **Stage One.** Calculate the number of ships/vessels that can be worked simultaneously (based on the factors in paragraph 17 above),
- (2) **Stage Two.** Estimate the rate of discharge/loading with all the available berths occupied and using the yardstick of 200 short tons loading or discharged per hatch/24 hr period for 6 hatches/ship/vessel,
- (3) **Stage Three.** Estimate the amount (tonnes or short tons) that can be moved from temporary storage to pier-side or reverse. This will depend on -
 - i. lift tonnage of available cargo transfer equipment,
 - ii. distance to temporary storage areas, and
 - iii. time the equipment is in transit;
- (4) **Stage Four.** Estimate the storage capacity of available storage areas for covered storage (use factors of 45 per cent of the available cube, and for open storage use the factor of 55 per cent of the available square area),
- (5) **Stage Five.** Clearance capacity depends on:
 - i. availability of MHE for clearance,
 - ii. time given to load 1 pallet (given that available trucks will hold 20 pallets),
 - iii. unlimited transport being available, and

- iv. given that the port gate clearance will take 10 minutes per vehicle, and
- (6) Determine the operating capacity of a maritime terminal for containers. Often the limiting factor here is the availability of mobile, fixed crane gantries - the method by which containers are loaded/discharged to/from the ship/vessel followed by storage capacity. If the port is designed for sea containers, storage is often the limiting factor.

**AIRFIELD RECCE REPORT – (NORMALLY COMPLETED BY MOBILE AIR
MOVEMENT SECTION [MAMS] TRAINED PERSONNEL)**

Prepared by: _____

Base/Unit: _____

Telephone: _____

Date: _____

1. General:

- a. Name of airfield:
- b. Location:
- c. ICAO Identifier:
- d. Map Co-ordinates:
- e. General Airfield Data (size, user units/companies, airlines, etc.):

2. Civilian/Military Representatives:

- a. Operations (Airport Manager):
- b. Maintenance:
- c. Security:
- d. Air Traffic Control:
- e. Logistics/Aircraft Servicing:
- f. Customs:
- g. Agriculture/Inspection:
- h. Other:

3. Emergency Telephone Numbers:

- a. Fire Hall:
- b. Ambulance:
- c. Control Tower:
- d. Other:

4. **Airport Operations:**

- a. weather limitations on airfield usage: _____
- b. fire and crash response: _____
- c. familiarity with types of aircraft involved: _____
- d. current utilization of:
 - (1) air terminal: _____
 - (2) hard standing and aircraft parking facilities: _____
 - (3) loading and offloading facilities: _____
- e. hours of operation: _____
- f. restrictions: _____

5. **Aircraft Loading/Offloading Ramp:** (attach map or sketch of ramp/marshalling areas)

- a. sufficient parking space for CC150, CC130 aircraft? _____
- b. If so, give approximate figures: _____
- c. loading/offloading restrictions in effect: _____
- d. do you have vehicle access? _____
- e. proximity to vehicle/cargo marshalling area: _____
- f. sufficient lighting on ramp area: _____
- g. skate wheel rollers required for deployment/redeployment: _____
- h. anti-skid mats for slippery ramp area: _____

6. **Vehicle/Cargo Marshalling Area:**

- a. adequate space? _____
- b. access to highway? _____
- c. access to aircraft parking ramp? _____
- d. sufficient lighting to perform load acceptance checks? _____

7. **Dangerous Goods Marshalling Area:**

- a. restrictions on aircraft parking? _____
- b. access routes: _____

- c. proximity to cargo marshalling area and aircraft parking: _____
 - d. adequate lighting? _____
 - e. is there a secure storage area for ammunition, explosives, etc.? _____
8. **Weigh Scales:**
- a. available from civilian/military sources? _____
 - b. if yes, list type and capacity available: _____
 - c. calibration certified? (In Canada, certificate is valid for 12 months from date of issue.) _____
 - d. if available from civilian sources, what are the rental charges and method of payment? _____
 - e. adequate location and lighting? _____
9. **Vehicle Washing Facilities:**
- a. location, description, adequacy: _____
10. **Vehicle Maintenance/De-fuelling Facilities:**
- a. location, description: _____
11. **MSE Fuel :**
- a. civilian/military sources: _____
 - b. if civilian, charges and method of payment: _____
 - c. location: _____
 - d. DIESEL/MOGAS: _____
12. **Working Accommodations:** (include brief description/location, etc.)
- a. office with telephone? (Include telephone number) _____
 - b. photocopying/fax available? _____
 - c. proximity to ALCE Ops, UEO, etc.: _____
 - d. crew room (with telephone, if required)? _____
 - e. passenger rest area? _____
 - f. customs, health and immigration room as required: _____
 - g. coffee/canteen facilities: _____

- h. washrooms: _____
- i. sheltered space (if required for load build-up, vehicle/cargo weighing and load acceptance checks): _____
- j. sufficient lighting to perform build-up/acceptance checks? _____
- k. accessibility and proximity to aircraft loading ramp: _____
- l. secure area for lock-up of attractive items, special equipment, etc.: _____

13. **Ground Support Equipment:**

- a. civilian/military sources: _____
- b. if civilian, rental charges and method of payment: _____
- c. K-25/K-35/FMC/Split-Loader or equivalents: _____
- d. fork lifts:
 - (1) fork lifts available (list maximum capacity): _____
 - (2) maximum lift capacity at height of 130": _____
 - (3) fork lift extensions/rollerized tines: _____
 - (4) 6000lbs lift capacity at 24 inches load centre: _____
 - (5) 10 000lbs lift capacity at 44 inches load centre: _____
- e. mobile crane available (list capacity): _____
- f. passenger stairs available? _____
- g. toilet servicing cart available? _____
- h. airfield crew and ramp vehicle available (list type)? _____
- i. mule and baggage carts: _____

14. **Customs, Health and Immigration:**

- a. location: _____
- b. documentation requirements: _____
- c. arrangements for meeting aircraft arrivals/departures: _____

15. **Airfield Security:**

- a. security pass/escort requirements: _____

- b. free access to flight line work areas? _____
- c. security procedures/requirements (list any problem areas that might affect operations): _____

16. **International Garbage:**

- a. disposal requirements;
- b. collection and disposal arrangements

17. **Miscellaneous Information:**

- a. currency exchange: _____
- b. suggested clothing, accessories: _____
- c. accommodations/messing nearby: _____
- d. source of rental vehicles: _____
- e. arrangements for delivering in-flight meals to the aircraft: _____
- f. MAMS projected workload: _____
- g. other: _____

RECCE REPORT SUMMARY:

(provide a general assessment of the areas inspected/not inspected and state significant particulars)

ROAD TERMINAL

Detailed Information

1. **Physical Detail.**

- a. dimensions of terminal including hard standing, storage areas, internal circuits;
- b. vehicle loading/unloading ramps;
- c. sea container and vehicle parks and waiting areas; and
- d. traffic signals.

2. **Load Handling Facilities.**

- a. capacity of storage area;
- b. MHE availability; quantity (eqpt and ops), lift capacity and time per lift;
- c. restrictions on movement within terminal; and
- d. availability and capacity of clearance transport modes; this will be affected by the turnaround time from the road terminal to the first destination off-loading point and also the turnaround time within terminal.

3. **Administrative Facilities.**

- a. accommodation areas;
- b. maintenance and repair facilities;
- c. water (drinking and other), fuel, power and lighting;
- d. available labour particularly skilled tradesman; and
- e. communications systems.

4. **Restrictions.** Imposed by the effects of climate, weather and the time of day on operations.

BEACH

Detailed Information

1. **Physical Detail.** Beach centres and limits, profile, positions and bearings, landmarks, jetties, ramps and hardstanding.
2. **Approaches.** Offshore, near-shore and foreshore.
3. **Anchorage.** Location, depths, nature of bottom and area.
4. **Sea.** Tides, tidal stream and surf, including underwater obstructions (as these may impede operations at low tide).
5. **Nature of Beach.** Surface features, composition and lateral movement.
6. **Back of Beach.** Exits, hinterland, cover and concealment, transit areas, hard and soft standing, covered storage.
7. **Discharge Facilities.** vehicle parks, container parks
8. **Beach Capacity.** dictated by:
 - a. craft unloading areas;
 - b. craft quantities capacity;
 - c. MHE availability; quantity (eqpt and ops), lift capacity and time per lift; and
 - d. turnaround time ship to shore.
9. **Modes of Transport (MOT) Available for Clearance.**
 - a. quantity and capacity of each mode;
 - b. turnaround time beach to first destination off-loading point;
 - c. traffic circuits and routes; and
 - d. restrictions on clearance transport from beach/terminal.

10. **Administrative Facilities.**

- a. communications systems;
- b. safety boats;
- c. accommodation areas;
- d. necessary engineer support;
- e. water (drinking and other), fuel, power and lighting; and
- f. available labour particularly skilled tradesman.

11. **Restrictions.** Imposed by effects of climate, weather, tides, the time of day on operations.

MOVEMENT STAFF TABLES

Aim

1. The aim of this Annex is to explain the composition and completion of Unit Staff Tables (UST), Unit Movement Staff Tables (UMST) and Task Force Movement Tables (TFMT). These three tables must now be maintained in electronic format, using the NDHQ approved software, the Joint Establishment and Movement Management System (JEMMS). Detail on JEMMS is available on the J4 Mov JEMMS Website on the Defence Wide Area Network (DWAN) Intranet. Despite the existence of this software, this annex provides examples of how to manually produce the UMST and TFMT in a worst case scenario.

General

2. Although equipment and establishment tables reflect the authorised composition for a unit, they may not accurately reflect unit strengths and equipment holdings at a particular time. This is identified by the UST. Movement Staff Tables (UMSTs and TFMTs) are developed as part of the Movement planning process for a specific operation, and are intended to provide the precise data required to determine lift requirements for a unit or Task Force being deployed. This information is required at NDHQ and subordinate headquarters at all levels for the following reasons:

- a. the Operations Staff (Ops Staff) require accurate, and current, data on unit organisation and resources from the UST, to assist them in assessing the capabilities and resources of each unit, so that the Task Force structure may be developed into the Table of Organization and Equipment (TO&E) for the specific operation;
- b. the Logistic and Administrative Staffs (Log and Adm Staff) require data to calculate resupply and other personnel and administrative support requirements; and
- c. the Movement Staff (Mov Staff) require the precise data incorporated in the TFMT to determine the transportation resources required to move the Task Force.

Unit Staff Table (UST)

3. The UST is an inventory of personnel, vehicles and equipment that is held on every unit's establishment in peacetime. It is a list of resources that can be drawn from to build the Unit Movement Staff Table (UMST), for a particular operational deployment. All deployable CF units are required to maintain a UST.

Unit Movement Staff Table (UMST)

4. A UMST is a list of the unit personnel, vehicles, major equipment, weapons, freight, ammunition and dangerous goods, that has been identified for deployment on an operation and prioritized for movement. The information provided in the UMST permits the determination of the transport resources required to move that particular unit.

5. The UMST will normally be created using the JEMMS application. Personnel, vehicle and equipment data will be extracted from the UST into the UMST and then assigned to a "Deployment Structure". This "Deployment Structure" will match that found in the corresponding Table of Organization and Equipment (TO&E) developed and approved by the Ops Staff for the mission. Once this has been completed, the data will be allocated to unit "Movement Elements" (i.e. Recce Party, Advance Party, Main Body) in accordance with deployment priorities provided by the Comd/CO. Once this step has been completed, the UMST will be forwarded to the Task Force Movement Officer (TFMO) who will collate the UMSTs provided by the units of the Task Force to produce a TFMT.

6. In the event that manual preparation of a UMST is required, and in order to minimise confusion, the format to be used is to be the same as that used within JEMMS.

7. Preparation, maintenance and submission of the UMST is a unit responsibility following the principles contained within this manual.

Description of UMST

8. A sample of a manually prepared UMST Summary Report is provided at Appendix 1 to this Annex. The UMST consists of three parts:

a. **Part I.** This is a summary of unit personnel, vehicles, trailers, major items of equipment (i.e. items that are not vehicles or trailers, and due to their size/weight are not shipped within a shipping container), general freight, ammunition freight and dangerous goods freight. It provides the basic information to plan the move of the unit;

b. **Part II.** This provides a detailed list of the ammunition to be carried by the unit (NOTE: in cases where the unit or a portion of the unit is deploying as part of a Task Force, ammunition may not be shipped by the unit. In such cases, this Part of the UMST would not be required); and

c. **Part III.** This provides a detailed list of the dangerous goods to be carried by the unit.

9. **Part I - UMST - Summary.** The following paragraphs provide a description of the columns used in each part of the UMST.

a. **General.** The UMST Summary will identify total numbers of personnel, vehicles, trailers, major equipment, and freight containers (including general freight, ammunition freight, and dangerous goods freight), by type (as applicable), that are found in each unit Movement Element. The Movement Elements will be as follows: Recce, Advance, Main, Surge, and Route Activation. The TFMO will normally provide direction to the UEOs on Task Force deployment, what the Task Force Movement Elements are and what each of the Task Force Movement Elements will consist of. (NOTE: Units will normally have limitations placed upon them regarding the quantities of personnel, vehicles and freight they will be able to deploy as part of the Recce or Advance Parties. UEOs will then allocate personnel, vehicles and equipment to their Unit Movement Elements as described above. It should be noted that Movement Elements could be further subdivided in response to the Task Force Commander's movement priorities. For example, the Task Force Main Body may comprise two sub elements. In such instances, each of these will be treated as a separate entity: the Main Body personnel deploying by air as one element [Main 1], and the Main Body Vehicles and Freight deploying by sea as another separate element [Main 2]. If this were the case, the UEO would then allocate his unit's Main Body personnel, vehicles and equipment according to the applicable Movement Element [Main 1 or Main 2]).

b. **Personnel.** Provide the total personnel deploying as part of each unit Movement Element. There is no need to distinguish between officers and NCMs.

c. **Vehicles.** Provide the total number of vehicles, by ECC with accompanying description, for each unit Movement Element. At the end of this section, provide the total number of vehicles (all ECCs) and the total lane metres for vehicles for each Movement Element.

d. **Trailers.** Provide the total number of trailers, by ECC with accompanying description, for each unit Movement Element. At the end of this section, provide the total number of trailers and the total lane metres for trailers for each Movement Element.

e. **Major Equipment.** Provide the total number of items of major equipment, with accompanying description, for each unit Movement Element. At the end of this section, provide

the total quantity of items of major equipment, the total lane metres, the total cube (in metres) and the total weight (in kilograms) for each Movement Element.

f. **General Freight.** Provide the total number of freight containers used to ship items of general freight (i.e., items other than ammunition or dangerous goods). At the end of this section, provide the total quantity of general freight containers, the total cube (in metres) and the total weight (in kilograms) for each Movement Element.

g. **Ammunition Freight.** Provide the total number of freight containers used to ship ammunition. At the end of this section, provide the total quantity of ammunition freight containers, the total cube (in metres) and the total weight (in kilograms) for each Movement Element.

h. **Dangerous Goods Freight.** Provide the total number of freight containers used to ship items of dangerous goods. At the end of this section, provide the total quantity of dangerous goods freight containers, the total cube (in metres) and the total weight (in kilograms) for each Movement Element.

10. **Part II - UMST - Ammunition.** When completing this part of the UMST the following is required:

- a. **Serial.** Each line to be serialised;
- b. **UIC/Unit Name.** Unit identifier code and unit name;
- c. **NSN.** Self-explanatory;
- d. **UN number.** The information can be found in the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air (C-05-040-011/VS-001);
- e. **Class.** As per para (d) above;
- f. **Proper Shipping Name.** As per para (d) above;
- g. **Qty.** Total number of items;
- h. **Net Explosive Quantity (NEQ).** NEQ for this serial if appropriate;
- i. **Package Type.** Where a description of the package is available;
- j. **Number of Packages.** Total number of packages in this serial;
- k. **Cube.** Volume of all items/packages in this serial;
- l. **Weight.** Total weight of serial in kilograms; and
- m. **Remarks.** This is available for any remarks on ammunition, which will assist with planning a move.

11. **Part III - UMST - Dangerous Goods.** When completing this part of the UMST the following is required:

- a. **Serial.** Each line to be serialised;
- b. **UIC/Unit Name.** Unit identifier code and unit name;

- c. **NSN.** Self-explanatory;
- d. **UN number.** The information can be found in the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air (C-05-040-011/VS-001);
- e. **Class.** As per para (d) above;
- f. **Proper Shipping Name.** As per para (d) above;
- g. **Qty.** Total number of items;
- h. **Net Explosive Quantity (NEQ).** Total NEQ for this serial if appropriate;
- i. **Package Type.** Where a description of the package is available;
- j. **Number of Packages.** Total number of packages in this serial;
- k. **Cube.** Volume of all items/packages in this serial;
- l. **Weight.** Total weight of serial in kilograms; and
- m. **Remarks.** This is available for any remarks on dangerous goods, which will assist with planning a move.

When completed the UMST should be classified appropriately.

Task Force Movement Table (TFMT)

12. A TFMT is a consolidated list of the Task Force personnel, vehicles, trailers, major equipment general freight, ammunition freight and dangerous goods freight which has been prioritized for movement. A completed TFMT permits the determination of the total transport resources required to move the entire Task Force.

13. The TFMT will normally be created using the JEMMS application. UMSTs are produced by the units deploying as part of a Task Force and are imported into the TFMT by the TFMO. Each of the unit "Movement Elements" identified in the UMST (i.e. unit Recce Party, Advance Party or Main Body) are then assigned to the Task Force "Movement Elements", based on the deployment priorities provided by the Task Force Ops Staff. Once this has been done, the TFMT will be forwarded to NDHQ/J4 Mov staff.

14. Should manual preparation of a TFMT be required, the format used will be the same as that used within JEMMS.

Description of TFMT

15. An example of a manually prepared TFMT Summary Report is provided at Appendix 2 to this Annex. The TFMT consists of three parts:

- a. **Part I.** This is a summary of the Task Force personnel, vehicles, trailers, major items of equipment (i.e. items that are not vehicles or trailers, and due to their size/weight are not shipped within a shipping container), general freight, ammunition freight and dangerous goods freight. It provides the basic information to plan the move of the Task Force;
- b. **Part II.** This provides a detailed list of the ammunition to be carried by the Task Force (NOTE: in most cases, Task Force ammunition stocks would be packed and shipped by the CF

Ammunition Depot tasked to support the operation. In such cases, the TFMO would obtain this Part of the TFMT through the NDHQ/DAPM staff); and

c. **Part III.** This provides a detailed list of the dangerous goods to be carried by the Task Force (NOTE: dangerous goods may be shipped by a number of organizations, including the units forming the Task Force, a CF Supply Depot or 3 CSG. Thus, the TFMT Part III (Dangerous Goods) is a consolidated list of all of the dangerous goods items being shipped by the Task Force).

16. **Part I - TFMT - Summary.** The following paragraphs provide a description of the columns used in each part of the TFMT:

a. **General.** Total numbers of personnel, vehicles, trailers, major equipment, general freight containers, ammunition freight containers, and dangerous goods containers will be entered for each UIC that is part of the Task Force, by Task Force Movement Element. Further, within each section of the TFMT Summary Report (i.e. Personnel, Vehicles, etc), sub-totals will be provided for each Task Force Movement Element. At the end of each section, grand totals for the particular category (i.e. Personnel, Vehicles, etc) will be provided.

b. **Personnel.** Provide the total personnel deploying as part of each Task Force Movement Element, by contributing UIC. There is no need to distinguish between officers and NCMs. At the end of this section, provide the total number of personnel for each Task Force Movement Element.

c. **Vehicles.** Provide the total number of vehicles, by ECC with accompanying description, for each Task Force Movement Element, by contributing UIC. At the end of this section, provide the total number of vehicles (all ECCs) and the total lane metres for vehicles for each Task Force Movement Element.

d. **Trailers.** Provide the total number of trailers, by ECC with accompanying description, for each Task Force Movement Element, by contributing UIC. At the end of this section, provide the total number of trailers and the total lane metres for trailers for each Task Force Movement Element.

e. **Major Equipment.** Provide the total number of items of major equipment, with accompanying description, for each Task Force Movement Element, by contributing UIC. At the end of this section, provide the total quantity of items of major equipment, the total lane metres, the total cube (in metres) and the total weight (in kilograms) for each Task Force Movement Element.

f. **General Freight.** Provide the total number of freight containers used to ship items of general freight (i.e., items other than ammunition or dangerous goods), by contributing UIC and including those being shipped as "theatre stocks" from a CF Supply Depot or 3 CSG. At the end of this section, provide the total quantity of general freight containers, the total cube (in metres) and the total weight (in kilograms) for each Task Force Movement Element.

g. **Ammunition Freight.** Provide the total number of freight containers used to ship ammunition, by contributing UIC (where applicable) and including those being shipped as "theatre stocks" from a CF Ammunition Depot. At the end of this section, provide the total quantity of ammunition freight containers, the total cube (in metres) and the total weight (in kilograms) for each Task Force Movement Element.

h. **Dangerous Goods Freight.** Provide the total number of freight containers used to ship items of dangerous goods, by contributing UIC and including those being shipped as "theatre stocks" from a CF Supply Depot. At the end of this section, provide the total quantity of

dangerous goods freight containers, the total cube (in metres) and the total weight (in kilograms) for each Task Force Movement Element.

17. **Part II - TFMT - Ammunition.** The TMFT Part II (Ammunition) will normally be obtained through the NDHQ/DAPM staff. The TFMT Part II (Ammunition) will provide a list of ammunition containers, with the details of the ammunition natures being shipped in each container. The following information will normally be provided:

- a. **Serial.** Each line will be serialised;
- b. **Task Force UIC/Name.** Task Force identifier code and name;
- c. **Container Type.** Self-explanatory.
- d. **NSN.** Self-explanatory;
- e. **UN number.** The information can be found in the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air (C-05-040-011/VS-001);
- f. **Class.** As per para (e) above;
- g. **Proper Shipping Name.** As per para (e) above;
- h. **Qty.** Total number of items;
- i. **Net Explosive Quantity (NEQ).** NEQ for this serial if appropriate;
- j. **Package Type.** Where a description of the package is available;
- k. **Number of Packages.** Total number of packages in this serial;
- l. **Cube.** Volume of all items/packages in this serial;
- m. **Weight.** Total weight of serial in kilograms; and
- n. **Remarks.** This is available for any remarks on ammunition, which will assist with planning a move.

18. **Part III - TFMT - Dangerous Goods.** The TFMT Part III (Dangerous Goods) will provide a list of dangerous goods containers, with the details of the dangerous goods commodities being shipped in each container. When completing this part of the TFMT the following is required:

- a. **Serial.** Each line will be serialised;
- b. **Task Force UIC/Name.** Task Force identifier code and name;
- c. **Container Type.** Self-explanatory.
- d. **NSN.** Self-explanatory;
- e. **UN number.** The information can be found in the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air (C-05-040-011/VS-001);

- f. **Class.** As per para (e) above;
 - g. **Proper Shipping Name.** As per para (e);
 - h. **Qty.** Total number of items;
 - i. **Package Type.** Where a description of the package is available;
 - j. **Number of Packages.** Total number of packages in this serial;
 - k. **Cube.** Volume of all items/packages in this serial;
 - l. **Weight.** Total weight of serial in kilograms; and
 - m. **Remarks.** This is available for any remarks on dangerous goods, which will assist with planning a move.
19. When completed the TFMT will be classified appropriately.

UMST SUMMARY REPORT: OPERATION (NAME)

UNIT: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
PERSONNEL			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Personnel:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
VEHICLES								
	(ECC) (ECC)	(Vehicle Description) (Vehicle Description)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)
Total Vehicles:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Lane (m):								
TRAILERS								
	(ECC) (ECC)	(Trailer Description) (Trailer Description)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)
Total Trailers:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Lane (m):								
MAJOR EQUIPMENT								
		(Description) (Description)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)
Total Count:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Lane (m):								
Total Cube (m):								
Total Weight (kg):								

UMST SUMMARY REPORT: OPERATION (NAME)

UNIT: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
GENERAL FREIGHT		CONTAINER TYPE (Description) (Description)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)
Total Containers:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Cube (m):								
Total Weight (kg):								
AMMUNITION FREIGHT		CONTAINER TYPE (Description) (Description)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)
Total Containers:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Cube (m):								
Total Weight (kg):								
DANGEROUS GOODS FREIGHT		CONTAINER TYPE (Description) (Description)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)	(Qty) (Qty)
Total Containers:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Cube (m):								
Total Weight (kg):								

UMST SUMMARY REPORT: OPERATION MANDOLIN

UNIT: 1 RNBR

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
PERSONNEL								
			15	30	555			600
Total Personnel:			15	30	555			600
VEHICLES								
	109503	FORKLIFT DED 6K LBS	1	2	2			5
	112301	CAR APC WHLED GRIZZLY	3	2	45			50
	112303	CAR ARMD REC/MAINT HUSKY	1	2	7			10
	112309	CAR ARMD AMB DED BISON	1	2	7			10
	123122	TRK CGO 1.5 TONNE 4X4 LSVW	3	6	21			30
	124035	TRUCK CARGO 2-1/2 TON	1	5	14			20
	126807	TRUCK CARGO 10 TM HLVW		2	8			10
	126810	TRUCK WRECKER 10 TM HLVW			5			5
Total Vehicles:			10	21	109			140
Total Lane (m):			42.87	128.79	806.65			978.31
TRAILERS								
	132101	TRAILER CARGO 3/4T	1	3	6			10
	132104	TRAILER CARGO 3/4T W/WATER TANK	1	1	8			10
	133404	GEN SET GED 10KW TLR MTD	1	2	7			10
	133702	TRAILER CARGO 1.5T	1	7	22			30
Total Trailers:			4	13	43			60
Total Lane (m):			12.66	36.54	121.79			170.99

UMST SUMMARY REPORT: OPERATION MANDOLIN

UNIT: 1 RNBR

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
MAJOR EQUIPMENT	1234567 ABC848488	Bridge Assembly Kit ROW/PU			1 1			1 1
Total Count:					2			2
Total Lane (m):					45.77			45.77
Total Cube (m):					185.48			185.48
Total Weight (kg):					15,750			15,750
GENERAL FREIGHT		CONTAINER TYPE						
		Air Pallet	5	15				20
		P Bunyon	2	3				5
		STD Ctn 20			75			75
		Reefer 20			10			10
Total Containers:			7	18	85			110
Total Cube (m):			246.77	609.68	1500.58			2357.03
Total Weight (kg):			10,200	27,800	800,000			840,000
AMMUNITION FREIGHT		CONTAINER TYPE						
		Air Pallet	1	2	10			3
		STD Ctn 20						10
Total Containers:			1	2	10			13
Total Cube (m):			1.24	2.48	110.66			114.38
Total Weight (kg):			5,000	10,000	100,000			115,000

UMST SUMMARY REPORT: OPERATION MANDOLIN

UNIT: 1 RNBR

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
DAINGEROUS GOODS FREIGHT		CONTAINER TYPE Air Pallet STD Ctn 20	5	15	40			20 40
Total Containers:			5	15	40			60
Total Cube (m):			74.89	156.48	507.48			738.85
Total Weight (kg):			15,000	45,000	400,000			460,000

TFMT SUMMARY REPORT: OPERATION (NAME)

TASK FORCE: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
PERSONNEL (Move Element)								
UIC								
UIC								
(Move Element) Sub-Total:								
(Move Element)								
UIC								
UIC								
(Move Element) Sub-Total:								
Total Personnel:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)

TFMT SUMMARY REPORT: OPERATION (NAME)

TASK FORCE: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
VEHICLES (Move Element)								
UIC	(ECC) (ECC)	(Vehicle Description) (Vehicle Description)						
UIC	(ECC) (ECC)	(Vehicle Description) (Vehicle Description)						
(Move Element) Sub-Total:		Vehicles: Lane (m):						
(Move Element)								
UIC	(ECC) (ECC)	(Vehicle Description) (Vehicle Description)						
UIC	(ECC) (ECC)	(Vehicle Description) (Vehicle Description)						
(Move Element) Sub-Total:		Vehicles: Lane (m):						
Total Vehicles:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Lane (m):								

TFMT SUMMARY REPORT: OPERATION (NAME)

TASK FORCE: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
TRAILERS								
(Move Element)								
UIC	(ECC) (ECC)	(Trailer Description) (Trailer Description)						
UIC	(ECC) (ECC)	(Trailer Description) (Trailer Description)						
(Move Element) Sub-Total:		Trailers: Lane (m):						
(Move Element)								
UIC	(ECC) (ECC)	(Trailer Description) (Trailer Description)						
UIC	(ECC) (ECC)	(Trailer Description) (Trailer Description)						
(Move Element) Sub-Total:		Trailers: Lane (m):						
Total Trailers:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Lane (m):								

TFMT SUMMARY REPORT: OPERATION (NAME)

TASK FORCE: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
MAJOR EQUIPMENT (Move Element)								
UIC		(Description) (Description)						
UIC		(Description) (Description)						
(Move Element) Sub-Total:		Count: Lane (m): Cube (m): Weight (kg):						
(Move Element)								
UIC		(Description) (Description)						
UIC		(Description) (Description)						
(Move Element) Sub-Total:		Count: Lane (m): Cube (m): Weight (kg):						
Total Major Equipment:								
Total Lane (m):								
Total Cube (m):								
Total Weight (kg):								

TFMT SUMMARY REPORT: OPERATION (NAME)

TASK FORCE: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
GENERAL FREIGHT (Move Element)		CONTAINER TYPE						
UIC		(Description) (Description)						
UIC		(Description) (Description)						
(Move Element) Sub-Total:		Count: Cube (m): Weight (kg):						
(Move Element)								
UIC		(Description) (Description)						
UIC		(Description) (Description)						
(Move Element) Sub-Total:		Count: Cube (m): Weight (kg):						
Total Count:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Cube (m):								
Total Weight (kg):								

TFMT SUMMARY REPORT: OPERATION (NAME)

TASK FORCE: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
AMMUNITION FREIGHT (Move Element)		CONTAINER TYPE						
UIC		(Description) (Description)						
UIC		(Description) (Description)						
(Move Element) Sub-Total:		Count:						
		Cube (m):						
		Weight (kg):						
(Move Element)								
UIC		(Description) (Description)						
UIC		(Description) (Description)						
(Move Element) Sub-Total:		Count:						
		Cube (m):						
		Weight (kg):						
Total Count:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Cube (m):								
Total Weight (kg):								

TFMT SUMMARY REPORT: OPERATION (NAME)

TASK FORCE: (NAME)

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
DANGEROUS GOODS FREIGHT (Move Element)		CONTAINER TYPE						
UIC		(Description) (Description)						
UIC		(Description) (Description)						
(Move Element) Sub-Total:		Count:						
		Cube (m):						
		Weight (kg):						
(Move Element)								
UIC		(Description) (Description)						
UIC		(Description) (Description)						
(Move Element) Sub-Total:		Count:						
		Cube (m):						
		Weight (kg):						
Total Count:			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)	(Qty)
Total Cube (m):								
Total Weight (kg):								

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
PERSONNEL								
Rece 1								
UIC 3234 Rece 1			15					15
UIC 3333 Rece 1			15					15
Rece 1 Sub-Total:			30					30
Advance 1								
UIC 3234 Advance 1				30				30
UIC 3333 Advance 1				50				50
Advance 1 Sub-Total:				80				80
Main 1								
UIC 3234 Main 1					555			555
UIC 3333 Main 1					200			200
Main 1 Sub-Total:					755			755
Total Personnel:			30	80	755			865

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
VEHICLES								
Rece 1								
UIC 3234 Rece 1	109503	FORKLIFT DED 6K LBS	1					1
	112301	CAR APC WHLED GRIZZLY	3					3
	112303	CAR ARMD REC/MAINT HUSKY	1					1
	112309	CAR ARMD AMB DED BISON	1					1
	123122	TRK CGO 1.5 TONNE 4X4 LSVW	3					3
	124035	TRUCK CARGO 2-1/2 TON	1					1
UIC 3333 Rece 1	123122	TRK CGO 1.5 TONNE 4X4 LSVW	3					3
	124035	TRUCK CARGO 2-1/2 TON	2					2
Rece 1 Sub-Total:		Vehicles:	15					15
		Lane (m):	101.45					101.45
Advance 1								
UIC 3234 Advance 1	109503	FORKLIFT DED 6K LBS		2				2
	112301	CAR APC WHLED GRIZZLY		2				2
	112303	CAR ARMD REC/MAINT HUSKY		2				2
	112309	CAR ARMD AMB DED BISON		2				2
	123122	TRK CGO 1.5 TONNE 4X4 LSVW		6				6
	124035	TRUCK CARGO 2-1/2 TON		5				5
UIC 3333 Advance 1	109503	FORKLIFT DED 6K LBS		2				2
	123122	TRK CGO 1.5 TONNE 4X4 LSVW		5				5
	124035	TRUCK CARGO 2-1/2 TON		5				5
Advance 1 Sub-Total:		Vehicles:		31				31
		Lane (m):		146.77				146.77

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
Main 2								
UIC 3234 Main 2	109503	FORKLIFT DED 6K LBS			2			2
	112301	CAR APC WHLED GRIZZLY			45			45
	112303	CAR ARMD REC/MAINT HUSKY			7			7
	112309	CAR ARMD AMB DED BISON			7			7
	123122	TRK CGO 1.5 TONNE 4X4 LSVW			21			21
	124035	TRUCK CARGO 2-1/2 TON			14			14
	126807	TRUCK CARGO 10 TM HLVW			8			8
	126810	TRUCK WRECKER 10 TM HLVW			5			5
UIC 3333 Main 2	109503	FORKLIFT DED 6K LBS			7			7
	123122	TRK CGO 1.5 TONNE 4X4 LSVW			21			21
	124035	TRUCK CARGO 2-1/2 TON			24			14
	126807	TRUCK CARGO 10 TM HLVW			48			8
	126810	TRUCK WRECKER 10 TM HLVW			5			5
Main 2 Sub-Total:		Vehicles:			214			214
		Lane (m):			1888.45			1888.45
Total Vehicles:			15	31	214			260
Total Lane (m):			101.45	146.77	1888.45			2136.67
TRAILERS								
Reece 1								
UIC 3234 Reece 1	132101	TRAILER CARGO 3/4T	1					1
	132104	TRAILER CARGO 3/4T W/WATER TANK	1					1
	133404	GEN SET GED 10KW TLR MTD	1					1
	133702	TRAILER CARGO 1.5T	1					1

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
UIC 3333 Recce 1	132101	TRAILER CARGO 3/4T	1					1
	132104	TRAILER CARGO 3/4T W/WATER TANK	1					1
	133404	GEN SET GED 10KW TLR MTD	1					1
	133702	TRAILER CARGO 1.5T	1					1
Recce 1 Sub-Total:		Trailers:	8					8
		Lane (m):	24.66					24.66
Advance 1								
UIC 3234 Advance 1	132101	TRAILER CARGO 3/4T	3					3
	132104	TRAILER CARGO 3/4T W/WATER TANK	1					1
	133404	GEN SET GED 10KW TLR MTD	2					2
	133702	TRAILER CARGO 1.5T	7					7
UIC 3333 Advance 1	132101	TRAILER CARGO 3/4T	3					3
	132104	TRAILER CARGO 3/4T W/WATER TANK	1					1
	133404	GEN SET GED 10KW TLR MTD	2					2
	133702	TRAILER CARGO 1.5T	7					7
Advance 1 Sub-Total:		Trailers:	26					26
		Lane (m):	76.88					76.88
Main 2								
UIC 3234 Main 2	132101	TRAILER CARGO 3/4T	6					6
	132104	TRAILER CARGO 3/4T W/WATER TANK	8					8
	133404	GEN SET GED 10KW TLR MTD	7					7
	133702	TRAILER CARGO 1.5T	22					22

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
UIC 3333 Main 2	132101	TRAILER CARGO 3/4T			6			6
	132104	TRAILER CARGO 3/4T W/WATER TANK			8			8
	133404	GEN SET GED 10KW TLR MTD			7			7
	133702	TRAILER CARGO 1.5T			22			22
Main 2 Sub-Total:		Trailers:			86			86
		Lane (m):						210.66
Total Trailers:			8	26	86			120
Total Lane (m):			24.66	76.88	210.66			312.20
MAJOR EQUIPMENT								
Main 2								
UIC 3234 Main 2	1234567	Bridge Assembly Kit			1			1
	ABC848488	ROW/PU			1			1
UIC 3333 Main 2	76456766	Tracklayer			1			1
Main 2 Sub-Total:		Count:			3			3
		Lane (m):			87.66			87.66
		Cube (m):			299.56			299.56
		Weight (kg):			30,800			30,800
Total Major Equipment:					3			3
Total Lane (m):					87.66			87.66
Total Cube (m):					299.56			299.56
Total Weight (kg):					30,800			30,800

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
GENERAL FREIGHT								
Recce 1								
UIC 3234 Recce 1		Air Pallet	5					5
		P Bunyon	2					2
UIC 3333 - Recce 1		Air Pallet	5					5
		P Bunyon	2					2
Recce 1 Sub-Total:		Count:	14					14
		Cube (m):	552.88					552.88
		Weight (kg):	20,400					20,400
Advance 1								
UIC 3234 Advance 1		Air Pallet		15				15
		P Bunyon		3				3
UIC 3333 - Advance 1		Air Pallet		15				15
		P Bunyon		3				3
Advance 1 Sub-Total:		Count:		36				36
		Cube (m):		1000.55				1000.55
		Weight (kg):		55,500				55,500

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
Main 2								
UIC 3234 Main 2		STD Ctn 20			75			75
		Reefer 20			10			10
UIC 3333 - Main 2		STD Ctn 20			75			75
		Reefer 20			10			10
Main 2 Sub-Total:		Count:			170			170
		Cube (m):			3000.55			3000.55
		Weight (kg):			1,600,000			1,600,000
Total Count:			14	36	170			220
Total Cube (m):			552.88	1000.55	3000.55			4553.98
Total Weight (kg):			20,400	55,500	1,600,000			1,675,900
AMMUNITION FREIGHT		CONTAINER TYPE						
Reece 1								
UIC 3234 Reece 1		Air Pallet	1					1
UIC 3333 Reece 1		Air Pallet	1					1
Reece 1 Sub-Total:		Count:	2					2
		Cube (m):	2.48					2.48
		Weight (kg):	10,000					10,000

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

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ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
Advance 1								
UIC 3234 Advance 1		Air Pallet		2				2
UIC 3333 Advance 1		Air Pallet		2				2
Advance 1 Sub-Total:				4				4
		Count:		4.96				4.96
		Cube (m):		20,000				20,000
		Weight (kg):						
Main 2								
UIC 3234 Main 2		STD Ctn 20			10			10
UIC 3333 Main 2		STD Ctn 20			10			10
Main 2 Sub-Total:					20			20
		Count:			221.32			221.32
		Cube (m):			200,000			200,000
		Weight (kg):						
Total Count:			2	4	20			26
Total Cube (m):			2.48	4.96	221.32			228.86
Total Weight (kg):			10,000	20,000	200,000			230,000

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

Page ___ of ___

ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
DANGEROUS GOODS FREIGHT		CONTAINER TYPE						
Recce 1								
UIC 3234 Recce 1		Air Pallet	5					5
UIC 3333 Recce 1		Air Pallet	5					5
Recce 1 Sub-Total:		Count:	10					10
		Cube (m):	149.78					149.78
		Weight (kg):	30,000					30,000
Advance 1								
UIC 3234 Advance 1		Air Pallet		15				15
UIC 3333 Advance 1		Air Pallet		15				15
Advance 1 Sub-Total:		Count:		30				30
		Cube (m):		312.96				312.96
		Weight (kg):		90,000				90,000

TFMT SUMMARY REPORT: OPERATION MANDOLIN

TASK FORCE: CDN CONTINGENT

Page ___ of ___

ITEM	ECC/SER	DESCRIPTION	RECCE	ADVANCE	MAIN	SURGE	ROUTE ACTIVATION	LINE TOTAL
Main 2								
UIC 3234 Main 2		STD Ctn 20			40			40
UIC 3333 Main 2		STD Ctn 20			40			40
Main 2 Sub-Total:		Count:			80			80
		Cube (m):			1014.96			1014.96
		Weight (kg):			800,000			800,000
Total Count:			10	30	80			120
Total Cube (m):			149.78	312.96	1014.96			1477.70
Total Weight (kg):			30,000	90,000	800,000			920,000

(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

FORMAT FOR A MOVEMENT ESTIMATE

File Reference:

Copy No. ____ of ____

Issuing HQ/Branch etc

Produced For: _____

Compiled By: _____

At: _____ (Zone Time) On: _____ (Day, Month, Year)

References:

- A. Appropriate maps, charts, reports (incl no, title, scale, date of edition as appropriate etc).
- B. Supporting Estimates.
- C. Directives and commanders planning guidance.

Time Zone Used Throughout the Estimate: _____

SITUATION AND MISSION ANALYSIS

- 1. Understand the intent of the superior commander.
- 2. Identify the assigned and implied tasks required to achieve the mission.
- 3. Recognise any constraints limiting your own actions.
- 4. Acknowledge any changes in the situation since the mission was given.

MISSION

*(A clear statement of the **mission** and its purpose against which all factors are considered)*

- 5. To deploy **Task Force X** from **Canada** to **Somewhere Challenging** in order to **Enable the Force to conduct Peace Keeping Operations**.

- a. Limitations

- (1) Tracked vehicles may only move by ship.
 - (2) All personnel are to be inoculated against TB prior to deployment etc

ASSUMPTIONS

- 6. Include only those assumptions required to complete the estimate.
 - a. Allied assets will not be available for this operation.
 - b. Commercial carriers owned by companies sympathetic to Xland not to be used etc.

(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

EVALUATION OF FACTORS

7. After each factor the question "so what?" must be asked to draw relevant deductions, and then after each deduction until "so what" cannot be asked anymore.

8. **Friendly Forces:**

9. **Enemy:**

a. What is the threat? Direct Air/Sea/Terrorist etc

b. **Deductions.** Enemy has air supremacy - therefore cannot commence deployment until this is reversed, or L of C subject to ambush - therefore convoys must be escorted, or no threat to L of C - therefore administrative movement acceptable

10. **Environment (Climatic and Geographical Factors):**

a. Extreme temperatures / monsoons / Relief etc

b. **Deductions.** Average temperature minus 30 degrees Celsius therefore de-icing required at APOD for aircraft, or AO monsoon effected therefore no wheeled movement from..... forward etc

Movement Factors:

11. **What is to be Moved?**

a. **Extract from TFMT.** Personnel, vehicles, weapons, general stores and dangerous goods etc.

b. **Deductions.**

(1) I will require a least one ship to move the tracked vehicles.

(2) The dangerous goods will require splitting into separate classifications etc.....

Where is it to move from?

12. **Unit Locations.** Units and individuals are currently based in peacetime locations.

a. Facilities available in these locations are:

(1) Loading facilities - MHE, ramps....etc

(2) Storage Facilities - covered, uncovered....etc

b. **Deduction.** The units can move directly from unit location by road.....

13. **Availability of Movement by Rail.**

a. The nearest railhead is and facilities available are:

(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

- (1) Loading Facilities with end and side loading Ramps...
- (2) Marshalling Areas.....
- b. **Deductions.** All vehicles may be transported by rail....
- 14. **Availability of Movement by Air.**
 - a. The nearest air-head is and has...etc
 - b. **Deductions.** Only the pax and advance party light vehicles may move by air....
- 15. **Availability of Movement by Sea**
 - a. The ports available are.....
 - b. **Deductions.** The complete Task Force can move by sea.... through the following ports
.....

Where is it to go to?

- 16. **Reception Facilities.**
 - a. Seaports (SPOE/Ds), Airports(APOE/Ds), etc.....
 - b. **Deductions.**
 - (1) No shore side cranes available - therefore only ROROs can be accepted at SPOD "Alpha" etc
 - (2) Austere airfield with short runway - therefore only CC130 can be accepted at APOD "Bravo" etc....

17. **Transport Infrastructure.**

- a. Road, Rail, air, IWT etc.....
- b. **Deductions.** No rail movement is possible in theatre....

18. **When is it Available to Move?**

- a. **Personnel Availability.** Units complete training on.....
- b. **Vehicle/Eqpt Availability.** Vehicles/Eqpt available for loading at.....
- c. **Deductions.**

19. **What Order Must it Arrive in?**

- a. **Composition of Task Force.** Advance Party, Main Body, Rear Party. The TFMT will provide the order of priority.
- b. **Deductions.**

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(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

20. What Movement Resources are Available?

a. Transport agencies.

(1) Road.....

(2) Rail, air, sea etc

b. Deductions - there is a lift/capability shortfall therefore contract action necessary etc
.....

21. Terminals.

a. Military and civilian.....

b. Deductions.....

22. Movement Control.

a. Unit 1.

b. Unit 2.

c. Deductions.....

23. Finance.

a. Funds Available

b. Deductions.

24. Time and Space.

a. Road

Ser	Loc	Dest	Dist to Travel	Av Speed (KIH)	Halts	Transit Time	Loading	Time to Report
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
						d/e + f	g + h	

b. Rail, Air and Sea.....

c. Deductions. The unit must depart peacetime location "Home Base" at to arrive at by

25. Summary of Main Deductions:

a. As deduced etc.

COURSES OF ACTION (COA)

(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

26. Describe COAs open to opposing force's (OPFOR). Feasible options and identify COA which has most serious impact on our capacity.

27. Describe COAs, which our forces have capacity to execute. Should only be limited by guidance in the initiating directive/Wng O. The description to include:

- a. CONOPS;
- b. Probable Tasks / Mission;
- c. Task Organisation;
- d. Critical support requirements; and
- e. Impact of this COA on other CF Ops, Trg etc

COMPARISON AND ANALYSIS OF COURSES OF ACTION (COA)

28. Compare each of our own COAs against the OPFOR potential COAs. This comparison should be as objective using the deductions derived previously from the estimate. It is often appropriate to set this comparison out in tabular format to focus on specific elements, particularly the comparisons.

COA 1 – Use only CF Owned Assets		
Comparison Aspect	OPFOR COA 1	OPFOR COA 2
1. Time Effect Earliest deployment 90 days		
2. Resource Effect Entire Air Fleet would then require re-fit		
3. Cost Effect \$ XXX Million		
4. Etc		
Assessment With no strategic sea lift would have to deploy entirely by air. Therefore only light forces. Effect on Air Fleet unacceptable		
COA 2 – Use only Commercial Assets etc		

SUMMARY OF COURSES OF ACTION (COA)

29. **Course 1**

- a. **General Description**
 - (1) Advantages.....
 - (2) Disadvantages.....

30. **Course 2, 3 etc...**

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(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

SELECTION OF THE PREFERRED COA

31. A recommendation statement for the preferred COA resulting from the above assessment.

OUTLINE PLAN

32. An outline plan based on the preferred COA is prepared:

- a. Mission:
- b. Execution:
 - (1) Concept of Ops
 - (2) etc.

(SECURITY CLASSIFICATION – as appropriate top & bottom of each page)

FORMAT FOR A MOVEMENT ORDER

NDHQ//COS J3 //
XXXXXXXXXX//G3 OPS/G4 TN//
XXXXXXXXXX// G3 OPS/G4 TN/G4 ENGRS//
NDHQ OTTAWA//ADM(MAT/ZEN//
DISTRIBUTION AS NECESSARY

INFO

XXXXXXXXXXXX

SECURITY CLASSIFICATION

SIC XXXXXXXXX

SUBJECT: NDHQ MOVEMENT ORDER OP XXXXX/ ANNEX L (MOV O) TO OP ORDER XXX
(XXX/XXX) OP XXXXXXX

REFS:

- A. (OP ORDER)
- B. (ADM ORDER)
- C. (MOV WG ORDER)
- D. A-LM-117-001/FP-001 TN OF DANGEROUS MAT BY CF AC
- E. B-GJ-005-404/FP-000 MOVEMENT DOCTRINE FOR CF OPERATIONS.
- F. B-GL-303-010/FP-005 MOV BY SEA (TO BE B-GJ-005-404/FP-010 MOV SP 1 SEA)
- G. B-GL-303-010/FP-002 MOV BY RAIL (TO BE B-GJ-005-404/FP-020 MOV SP 2 RAIL)
- H. B-GG-005-014/AF-040 MOV VOL 4 -AIR. (TO BE B-GJ-005-404/FP-040 MOV SP 4 AIR)
- I. C-05-040-011/VS-001 ICAO
- J. XXXXXXXXXXXXXXXXXXXXXXXXXX

1. SITUATION. SEE REFS X AND X. STRATEGIC TRANSPORTATION RESOURCES TO DEPLOY THE CANADIAN CONTINGENT ARE BEING PROVIDED BY XXXXXXXXXXXXXXXXXXXX.

2. MISSION. TO DEPLOY/REDEPLOY/ROTATE/ XXXX TO/FROM XXXX BY NLT XXXX

3. EXECUTION.

3A. GENERAL OUTLINE. THE CANADIAN CONTINGENT/TASK FORCE X IS TO DEPLOY TO XXXXX FROM CANADA USING CF AND CIVIL AIR AND SEA TRANSPORTATION RESOURCES. TASK FORCE HQ ELEMENTS ARE TO DEPLOY UNDER SEPARATE ARRANGEMENTS. VEHICLES AND MATERIEL ARE TO DEPLOY TO XXXXXXX BY ROAD AND RAIL FROM XXXXXXX. MOV CON WITHIN AND FROM CANADA ARE TO BE EXECUTED BY THE J4 MOV OPS. THEATRE MOV CON IS TO BE EXECUTED BY THE TASK FORCE HQ MCC. THE DEPLOYMENT IS TO TAKE PLACE IN XXXXXX STAGES:

3A(1) STAGE ONE. ROAD AND RAIL MOVE TO ASSEMBLY AREAS IS TO BE BY AREA ARRANGEMENTS XXXXXXX.

3A(2) STAGE TWO. THE ADVANCE PARTY XXXXXX, PERSONNEL AND EQUIPMENT ARE TO MOVE BY XXXXXXX FROM XXXXXXX TO XXXXXXX BY XXXXXX.

3A(3) STAGE THREE. MOVEMENT OF VEHICLES AND EQUIPMENT BY ROAD AND RAIL FROM ASSEMBLY BASE (ASSY BASE) XXXXXX AND ASSY BASE XXXXXX.

3A(4) STAGE FOUR. THE MAIN BODY IS TO DEPLOY BY AIR/SEA TO COINCIDE WITH RAIL AND SHIP ARRIVALS.

3A(4)(A) XXXXXXXX BN GROUP IS TO DEPART XXXXXXXX IN XXXXX LIFTS.

3A(4)(B) CSG IS TO DEPART XXXXXX IN XXXX LIFTS.

3A(5) STAGE FIVE. DEPLOYMENT OF CANADIAN BASED VEHICLES, EQUIPMENT AND SEA CONTAINERS BY SEA FROM XXXXXXXX TO XXXXXX AND XXXXXX.

3A(6) STAGE SIX. XXXXXXXXXXXX.

3A(7) OPERATIONAL MOVEMENT. IN THEATRE OPERATIONAL MOVEMENT FROM THE SPOD AND APOD ARE TO BE PLANNED, COORDINATED AND CONTROLLED BY THE TASK FORCE HQ MCC AS DIRECTED BY TASK FORCE COMMANDER.

3B. TASKS.

3B(1) ADM(MAT)

3B(1)(A) PROVIDE STRATEGIC MOV CON FOR ALL MOVEMENTS BETWEEN CANADA AND XXXXXXXX, AND BETWEEN CANADA AND XXXXXXXX.

3B(1)(B) ARRANGE FOR COMMERCIAL AIR, RAIL, AND SEA ASSETS.

3B(2) ADM(DIS). PROVIDE COORDINATION WITH J4 MOV OPS CONCERNING THE MOVEMENT OF COMMUNICATIONS PERSONNEL AND EQUIPMENT.

3B(3) XXX HQ.

3B(3)(A) PROVIDE RAIL LOADING AND OFF-LOADING PARTIES AT RAILHEADS IN CANADA.

3B(3)(B) PROVIDE SERVICE SUPPORT TO THE APOES AT XXXXXXXXXXXX, XXXXXXXXXXXX, AND XXXXXXXXXXXX.

3B(3)(C) DETACH UNDER OPCON TO 4 CFMCU, MOV CON DETS AT XXXXXXXXXXXX, XXXXXXXXXXXX, AND XXXXXXXXXXXX.

3B(3)(D) PROVIDE ROAD MOVEMENT RESOURCES FROM ASSY BASES TO SPOE AS REQUESTED BY OIC MOV CON DETS.

3B(3)(E) ARRANGE MOVE OF XXXXXXXX/CSG RAIL LOADING PARTY TO XXXXXX AND XXXXX AS NECESSARY.

3B(4) 1 CAD HQ.

3B(4)(A) PROVIDE AIRLIFT ON AN EXCEPTIONAL BASIS WHEN TASKED, AND PUBLISH SCHEDULE/TIMINGS.

3B(4)(B) PROVIDE XXXXXXXXXXXXXXXXXXXX.

3B(4)(C) PROVIDE AN AIR OPS LO, AND A MAMS LO (OR NCM NOT BELOW THE RANK OF MWO) AT ALL APOES TO ASSIST XXXXXXXXXXXX WITH CF OPERATIONAL PROCEDURES.

3B(4)(D) PROVIDE SUPPORT TO APOE HALIFAX SHOULD WIDE-BODY AIRCRAFT BE UTILIZED IN THE AIRLIFT.

3C. COORDINATING INSTRUCTIONS.

3C(1) ASSY BASES.

3C(1)(A) XXXXXXXXXXXX

3C(1)(B) XXXXXXXXXXXX

3C(2) APOES.

3C(2)(A) XXXXXXXXXXXX

3C(2)(B) XXXXXXXXXXXX

3C(3) SPOES.

3C(3)(A) XXXXXXXXXXXX

3C(3)(B) XXXXXXXXXXXX

3C(4) STAGING BASES.

3C(4)(A) STAGE ONE - XXXXXXXXXXXX

3C(4)(B) STAGE TWO - XXXXXXXXXXXX

3C(4)(C) STAGE THREE - XXXXXXXXXXXX

3C(5) APOD(S). XXXXXXXXXXXXXXXX

3C(6) SPOD(S). XXXXXXXXXXXXXXXX

3C(7) RAILHEADS.

3C(7)(A) XXXXXXXXXX

3C(7)(B) XXXXXXXXXX

3C(8) TIMINGS.

3C(8)(A) STAGE ONE.

3C(8)(B) STAGE TWO.

3C(8)(C) STAGE THREE.

3C(8)(D) STAGE FOUR.

3C(8)(E) STAGE FIVE.

3C(8)(F) STAGE SIX.

3C(9) PASSPORTS. PERSONNEL ATTACH-POSTED TO SOME COUNTRIES (SUCH AS SYRIA) WILL REQUIRE A VALID GOVERNMENT (GREEN) PASSPORT WITH VISAS. IT IS STILL POSSIBLE TO BE POSTED TO MANY COUNTRIES WITH A VALID ORDINARY (BLUE) PASSPORT. CF PERSONNEL WHOSE ORDINARY (BLUE) PASSPORT IS DUE TO EXPIRE WHO ARE ELIGIBLE FOR A GOVERNMENT (GREEN) PASSPORT ARE TO APPLY IN ACCORDANCE WITH CFAO 20-1 (REV 96) AND FORWARDED BY PRIORITY POST TO NDHQ/DTM PASSPORT-

NOTE: ANY QUERIES ON REQUIREMENTS FOR A SPECIFIC MISSION/COUNTRY TO BE ADDRESSED TO DTM PASSPORTS ON CSN 847 7895 OR COM 819 997 7825.

3C(10) DANGEROUS GOODS. ALL VEHICLES, EQUIPMENT AND STORES TO BE SHIPPED MUST BE PREPARED IN ACCORDANCE WITH REFERENCES D, F, AND H FOR AIRLIFT, REFERENCE E FOR RAIL, AND REFERENCE G FOR SEA. XXXXXX IS TO PREPARE A DANGEROUS CARGO LOAD LIST FOR CARGO TO BE MOVED BY AIR.

3C(11) LOAD LISTS. UNITS ARE TO SUBMIT FINALISED LOAD LISTS INCLUDING DANGEROUS GOODS TO SUPPORTING MOV CON DETS BY THE DATES SHOWN BELOW:

3C(11)(A) ADVANCE PARTY - NLT DTG

3C(11)(B) MAIN BODY BY AIR - NLT DTG

3C(11)(C) MAIN BODY BY SEA - NLT DTG

3C(12) CUSTOMS.

3C(12)(A) PERSONNEL. NORMAL PROCEDURES APPLY. MEMBERS DEPARTING CANADA WITH ATTRACTIVE OR EXPENSIVE SERIAL NUMBERED ITEMS SUCH AS CAMERAS, STEREOS ETC. ARE STRONGLY ENCOURAGED TO OBTAIN FROM CUSTOMS CANADA A STAMPED Y38 CARD TO CERTIFY OWNERSHIP PRIOR TO DEPARTURE.

3C(12)(B) MATERIEL. NORMAL PROCEDURES FOR EXPORT APPLY. EACH VEHICLE, TRAILER, TRI-WALL AND CONTAINER IS TO HAVE A COMPLETE LIST OF CONTENTS.

3C(13) BULK CARGO. BULK CARGO IS TO BE PALLETIZED OR PLACED IN PAUL BUNYAN FOR AIR MOVE, OR STUFFED IN TWENTY-FOOT SEA CONTAINERS FOR SEA SHIPMENT.

3C(14) EQUIPMENT SECURITY. ALL VEHICLE AND EQUIPMENT TIE DOWN POINTS ARE TO BE SERVICEABLE. ALL CARGO LOADED ON VEHICLES OR TRAILERS AND IN CONTAINERS IS TO BE PROPERLY SECURED.

3C(15) BAGGAGE ENTITLEMENT.

3C(15)(A) PERSONNEL ATTACHED POSTED TO OP XXXXXXXXXXXXXXXX - TOTAL BAGGAGE LIMIT OF XXX LBS/XXX KG. ALL BAGGAGE TO BE ACCOMPANIED.

3C(15)(B) DUE TO LIMITED CARGO HOLD CAPACITY ON SOME COMMERCIAL AIRCRAFT, ACCOMPANIED BAGGAGE MAY NEED TO BE PALLETIZED TO BE DELIVERED TO XXXXXXXX ON A SEPARATE CARGO FLIGHT.

3C(16) WEAPONS. ALL PERSONAL WEAPONS ARE TO BE BUNDLED AND STOWED IN AIRCRAFT HOLDS. WEAPONS ARE NOT TO BE STOWED IN INDIVIDUAL BAGGAGE. WEAPON BUNDLES

ARE TO BE ACCORDED THE SAME PRIORITY AS ACCOMPANIED BAGGAGE AND ARE TO TRAVEL ON THE SAME AIRCRAFT AS UNIT PERSONNEL. UNITS ARE TO ENSURE THAT SIGHT COVERS ARE FIRMLY ATTACHED. MEMBERS ARE TO CARRY BREACH BLOCKS ON THEIR PERSON.

3C(17) AMMUNITION. AMMUNITION IS TO BE SHIPPED BY SEA IN 20 FOOT SEA CONTAINERS.

4. SERVICE SUPPORT. ASSY BASES, APOES, SPOES, STAGING BASES AND MOUNTING BASES ARE TO PROVIDE SUPPORT: INCLUDING THE PROVISION OF R AND Q, GROUND TRANSPORT, COMMUNICATIONS, EMERGENCY MEDICAL AND DENTAL COVER, EMERGENCY VEHICLE RECOVERY AND MAINTENANCE, AND OTHER ADMINISTRATIVE AND LOGISTIC SUPPORT TO MOV CON DETS, TRANSPORTATION AGENCIES, LOADING PARTIES AND PERSONNEL AND EQUIPMENT BEING DEPLOYED. ALL SERVICE SUPPORT TO BE COORDINATED THROUGH THE APPLICABLE MOV CON DET.

5. COMMAND AND SIGNALS.

5A. CONTACTS.

5A(1) J4 MOV OPS - (CSN) 99X-XXXX (SECURE VOICE AND FAX) OR 99X-XXXX.

5A(2) 4 CFMCU - (51X)-XXX-XXXX.

5B. OVERALL MOV COORD IS TO REMAIN WITH J4 MOV OPS WITH UNITS COMING UNDER COMD FOR MOV FROM DEPARTURE ASSY BASES TO ARRIVAL AT APOD AND SPOD. UNITS ARE TO BE CALLED FORWARD FROM ASSY BASES BY MOV CON DETS TO APOES/SPOE. IN-THEATRE OPERATIONAL MOV CON IS TO BE COORD BY TASK FORCE HQ MCC.

5C. DIRLAUTH BETWEEN UEOS/ MOV CON DETS/LOS/AGENCIES TASKED.

5D. ON ACTIVATION, MOV CON DETS ARE TO SUBMIT DAILY SITREPS NLT 1100Z HOURS TO NDHQ/NDQC/ J4 MOV OPS OUTLINING ACTIVITIES FOR THE PAST 24 HOURS AND AREAS OF CONCERN.

5E. ACTION ADDRESSEES ACK TO J4 MOV OPS.

COORD:

X.X. XXXXXXXX
XXXX
J4 MOV

XXXXXXXXXXXXXXXXXX
XXXXX
XXXXXXX

CONVERSION FACTORS

The following appendices contain the conversion factors indicated:

- a. Appendix 1 - Table of Weight Equivalents.
- b. Appendix 2 - Table of Volume Equivalents.
- c. Appendix 3 - Table of Volume Conversion.
- d. Appendix 4 - Table of Distance Equivalents.
- e. Appendix 5 - Table of Surface Equivalents.
- f. Appendix 6 - Table of Velocity Equivalents.
- g. Appendix 7 - Table of Speed Conversion.
- h. Appendix 8 - Tables of Temperature Conversion and Equivalents.
- i. Appendix 9 - Table of Angular Equivalents

TABLE OF WEIGHT EQUIVALENTS

Serial	Unit	Long Tons	Metric Tons	Short Tons	Kilograms	Pounds
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	One long ton	1	1.0160	1.12	1016.05	2240
2	One metric ton	0.9842	1	1.1023	1 000	2204.62
3	One short ton	0.8929	0.9072	1	907.18	2 000
4	One kilogram	-	-	-	1	2.2046
5	One pound	-	-	-	0.4536	1

TABLE OF VOLUME EQUIVALENTS

Serial	Unit	Imp Gallons	US Gallons	Litres	Cu Inches	Cu Feet	Cu Yards	Cu Metres
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)
1	One imperial gallon	1	1.2010	4.546	277.42	0.1605	0.00595	0.00455
2	One US gallon	0.8327	1	3.785	231	0.1337	0.00495	0.00378
3	One litre (cu decimetre)	0.2200	0.2642	1	61.025	0.0352	0.00131	0.001
4	One cubic inch	0.00361	0.00433	0.01639	1	0.00058	-	-
5	One cubic foot	6.229	7.481	28.317	1 728	1	0.03704	0.0283
6	One cubic yard	168.184	201.97	764.56	46 656	27	1	0.7646
7	One cubic metre	219.98	264.18	1 000	61 024	35.3146	1.30794	1

TABLE OF VOLUME CONVERSION

Imperial Gallons	Litres
(a)	(b)
1	4.546090
2	9.092
3	13.638
4	18.184
5	22.730
6	27.276
7	31.822
8	36.368
9	40.914
10	45.46
20	90.92
30	136.40
40	181.80
50	227.30
60	272.80
70	318.20
80	363.70
90	409.10
100	454.60

Litres	Imperial Gallons
(a)	(b)
1	0.219975
2	0.440
3	0.660
4	0.880
5	1.100
6	1.320
7	1.540
8	1.760
9	1.980
10	2.20
20	4.40
30	6.60
40	8.80
50	11.00
60	13.20
70	15.40
80	17.60
90	19.80
100	22.00

TABLE OF DISTANCE EQUIVALENTS

Serial	Unit	Nautical Miles	Statute Miles	Kilometres	Metres	Yards	Feet	Inches	Centimetres
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(k)
1	One nautical mile	1	1.1516	1.8532	1 853.2	2 026.8	6 080.27	72 963	185 318
2	One statute mile	0.8684	1	1.6093	1 609.3	1 760	5 280	63 360	160 934
3	One kilometre	0.5396	0.6214	1	1 000	1 093.6	3 280.6	39 370	100 000
4	One metre	-	-	0.001	1	1.0936	3.281	39.37	100
5	One yard	-	-	-	0.9144	1	3	36	91.44
6	One foot	-	-	-	0.3048	0.3333	1	12	30.48
7	One inch	-	-	-	0.0254	0.02778	0.0833	1	2.54
8	One centimetre	-	-	-	0.0100	0.0109	0.0328	0.3937	1

TABLE OF SURFACE EQUIVALENTS

Serial	Unit	Square Miles	Square Kilometres	Hectares	Acres	Square Metres	Square Yards	Square Feet
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	One square mile	1	2.59	259	640	2 589 945	3 097 600	-
2	One square kilometre	0.3861	1	100	247.1	1 000 000	1 196 010	-
3	One hectare	0.00386	0.0100	1	2.471	10 000	11 960	107 641
4	One acre	0.00156	0.00405	0.4047	1	4 047	4 840	43 560
5	One square metre	-	-	0.0001	0.00025	1	1.1960	10.764
6	One square yard	-	-	-	0.00021	0.8361	1	9.0
7	One square foot	-	-	-	-	0.0929	0.1111	1

TABLE OF VELOCITY EQUIVALENTS

Serial	Unit	Feet Per Second	Metres Per Second	Kilometres Per Hour	Miles Per Hour	Nautical Miles Per Hour
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	One foot per second	1	0.30480	1.09728	0.68182	0.59209
2	One metre per second	3.28083	1	3.6	2.23693	1.94254
3	One kilometre per hour	0.91134	0.27778	1	0.62137	0.53959
4	One mile per hour	1.46667	0.44704	1.60935	1	0.86839
5	One knot	1.68894	0.51479	1.85325	1.15155	1

TABLE OF SPEED CONVERSION

Serial	Miles Per Hour	Feet Per Second	Metres Per Second	Kilometres Per Hour	Knots
(a)	(b)	(c)	(d)	(e)	(f)
1	1	1.4667	0.44704	1.609344	0.8684
2	2	2.93	0.894	3.22	1.74
3	3	4.40	1.34	4.83	2.61
4	4	5.87	1.79	6.44	3.47
5	5	7.34	2.24	8.05	4.34
6	6	8.80	2.68	9.66	5.21
7	7	10.27	3.13	11.27	6.08
8	8	11.73	3.58	12.87	6.95
9	9	13.20	4.02	14.48	7.82
10	10	14.67	4.47	16.09	8.68
11	20	29.33	8.94	32.19	17.37
12	30	44.00	13.41	48.28	26.05
13	40	58.67	17.88	64.37	34.74
14	50	73.34	22.35	80.47	43.42
15	60	88.00	26.82	96.56	52.10
16	70	102.67	31.29	112.65	60.79
17	80	117.34	35.76	128.74	69.47
18	90	132.01	40.23	144.84	78.16
19	100	146.67	44.70	160.93	86.84

TEMPERATURE CONVERSION

Serial	To Convert		Formula
	From	To	
(a)	(b)	(c)	(d)
1	°F	°C	$(^{\circ}\text{F} - 32) \times 5/9$
2	°F	°R	$(^{\circ}\text{F} - 32) \times 4/9$
3	°F	°K	$(^{\circ}\text{F} + 459.67) \times 5/9$
4	°C	°F	$(^{\circ}\text{C} \times 9/5) + 32$
5	°C	°R	$^{\circ}\text{C} \times 4/5$
6	°C	°K	$^{\circ}\text{C} + 273.15$
7	°R	°C	$^{\circ}\text{R} \times 5/4$
8	°R	°F	$(^{\circ}\text{R} \times 9/4) + 32$
9	°K	°C	$^{\circ}\text{K} - 273.15$
10	°K	°F	$(^{\circ}\text{K} \times 9/5) - 459.67$

NOTES

1. The following temperature scales are used:
 - a. °F - Fahrenheit;
 - b. °C - Celsius;
 - c. °R - Reaumur; and
 - d. °K - Kelvin or Absolute.
2. The equivalent freezing and boiling points of water are:
 - a. freezing point -32°F/0°C/0°R/273.15°K; and
 - b. boiling point -212°F/100°C/80°R/373.15°K.

Degrees		Degrees		Degrees		Degrees	
°C	°F	°C	°F	°C	°F	°C	°F
(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
-40	-40.0	-17	1.4	6	42.8	30	86.0
-39	-38.2	-16	3.2	7	44.6	32	89.6
-38	-36.4	-15	5.0	8	46.4	33	91.4
-37	-34.6	-14	6.8	9	48.2	34	93.2
-36	-32.8	-13	8.6	11	51.8	35	95.0
-35	-31.0	-12	10.4	13	55.4	36	96.8
-34	-29.2	-11	12.2	14	57.2	37	98.6
-33	-27.4	-10	14.0	15	59.0	38	100.4
-32	-25.6	-8	17.6	16	60.8	39	102.2
-31	-23.8	-6	21.2	17	62.6	40	104.0
-30	-22.0	-5	23.0	18	64.4	41	105.8
-29	-20.2	-4	24.8	19	66.2	42	107.6
-27	-16.6	-3	26.6	20	68.0	43	109.4
-25	-13.0	-2	28.4	21	69.8	44	111.2
-24	-11.2	-1	30.2	22	71.6	45	113.0
-23	-9.4	0	32.0	23	73.4	46	114.8
-22	-7.6	1	33.8	24	75.2	47	116.6
-21	-5.8	2	35.6	25	77.0	48	118.4
-20	-4.0	3	37.4	26	78.8	49	120.2
-19	-2.2	4	39.2	27	80.6	50	122.0
-18	-0.4	5	41.0	28	82.4	100	212.0

TABLE OF ANGULAR EQUIVALENTS

Serial	Unit	Circle	Radians	Degrees	Grades	Mils	Minutes
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	One circle (Note 1)	1	6.283184	360	400	6 400 (Note 2)	21 600
2	One radian	0.159155	1	57.2958	63.662	1 018.6	3 437.75
3	One degree	0.002778	0.017453	1	1.1111	17.776	60
4	One grade	0.0025	0.015708	0.9	1	16	54
5	One mil	0.000156	0.000982	0.05625	0.0625	1	3.375
6	One minute	0.000046	0.000291	0.01667	0.0185	0.2963	1

NOTES

1. Circle = 360° = 2 radians = 6,400 mils = 3,141592
2. By definition a mil is 0.001 of a radian. Therefore there are 6,283.2 mils in a circle. For ease of calculation, a circle is considered to be 6,400 mils. The resultant 1.8 per cent error rate is considered insignificant for small angles.

CHAPTER 4

NATIONAL TRANSPORTATION CO-ORDINATION DURING A NATIONAL EMERGENCY, INTERNATIONAL CRISIS OR ARMED CONFLICT

SECTION 1 - GENERAL

INTRODUCTION

1. This chapter outlines the relationships within Canada amongst the Canadian Forces (CF), Transport Canada (TC) and civil mode of transportation operators and agencies during national emergencies, international crisis or armed conflict.

(Note: although NATO and CF have adopted the acronym MOT for mode of transportation, take care when using it when dealing with the civil sector where MOT is commonly used as Minister or Ministry of Transport).

2. Natural or person induced emergencies may occur in Canada and may escalate into disasters, that warrant provincial / territorial and/or federal government assistance. The probability of the whole nation being affected by damage is low given the enormity of the nation however, the demand for resources could be significant.

3. The international security challenges and risks that Canada now faces, differ in nature to those of the "Cold War" era. The threat of any direct, full-scale attack on Canada, or a simultaneous attack on our NATO partners has been effectively removed. In contrast, the security risks to NATO, and indirectly to Canada, are multi-faceted and multi-directional in nature, which makes them hard to predict and assess. While the end of the Cold War has greatly reduced the risk of a major global conflict, there is now an increased risk, and increased incidence, of smaller crises arising. Some crises develop quickly requiring a rapid international response to prevent escalation.

4. During normal peacetime operations, existing Department of National Defence (DND) resources supported, on a commercial basis, by the resources of the Canadian and international transportation industry, meet the transport requirements of the CF. In this manner, the CF bids for available civilian resources and contracts carriers representing all modes of transportation. If a national emergency has not been declared, the CF must continue to compete for access to civil transportation resources even whilst deployed on operations.

5. Legislative contingency provisions have been prepared to modify the "normal" system during national emergency situations, international crises or war should the Government of Canada decide such measures are necessary. Any changes would be implemented in accordance with the Government Emergency Book (GEB). From a CF perspective, these measures may vary from increased co-ordination and co-operation with other government departments (OGDs), most likely to be TC, to supporting the national co-ordination of transportation by TC. The actual control and direction of civil transportation resources, or services, by TC would have to be authorized by an Order-in-Council under the Emergencies Act.

6. DND may become involved in a national emergency or international crisis in two principal capacities, either as a source of transportation resources or as a client in need of additional transportation resources.

**RESPONSIBILITIES OF TRANSPORT CANADA DURING A NATIONAL EMERGENCY,
INTERNATIONAL CRISIS OR WAR**

7. Under the provisions of the Emergency Preparedness Act, the Minister of Transport Canada has responsibilities for peacetime contingency planning for the effective use of civil transportation resources during an emergency. The Minister is to provide advice and information on civil transportation resources, as may be necessary and, to respond to requests for assistance from OGDs, regions, provinces and/or other countries, through NATO or the UN, as co-ordinated through EPC (Emergency Preparedness Canada). This contingency planning will logically lead to the development of a series of arrangements for implementation in accordance with the nature of the emergency. The Minister's responsibilities will include:

a. co-ordinating, regulating, managing and directing as necessary, the allocation of all transportation resources, including airports, sea ports, harbours, terminals and inland waterways, and all associated resources other than:

- (1) those operated by the CF or any Armed Forces co-operating therewith,
- (2) those operated by the Royal Canadian Mounted Police (RCMP), and
- (3) those vessels, facilities and services under the control of the Minister of Fisheries and Oceans;

b. liaising with NATO through established affiliations and with other nations through current bilateral agreements, as required.

c. determining the nature and extent of damage to any mode(s) of transportation network, corridor, terminal, equipment, fleet or resource and identifying requirements for repair, replacement and augmentation.

SECTION 2 - EMERGENCY TRANSPORTATION CO-ORDINATION ORGANIZATION

TRANSPORT CANADA

1. Transport Canada (TC) consists of Civil Aviation, Marine and Rail components. TC has established and during periods of national emergency, or international crisis, will maintain and enhance, as necessary, links and liaison with the TC Situation Centre (TCSC) and the Emergency Preparedness Canada Government Operations Centre (GEOC). TC will establish the links required with OGDs, the transport industry, agencies and regions as may be necessary, to exercise the regulatory and emergency preparedness activities, as mandated. TC's organisational chart will be placed at Annex A once formalised.

2. TC has developed organizational structures appropriate to their roles and operational tasks. Further, they have identified the enhancements required for responding to graduated level of emergency situations.

REQUESTS FOR SUPPORT

3. All DND requests for transport support are to be submitted through the chain of command to NDHQ NDCC. At each level the request is to be scrutinised to see whether it can be met by the appropriate Commander's resources, and within his authority. Likewise any request received by NDCC is to be passed immediately to NDMCC (J4 Mov Ops) to establish how the request can be met. In turn any requests outside of DND's capability will be submitted to EPC for final consideration. The format to be used for requesting transportation support through the chain of command to NDCC can be found at Annex B.

4. Similarly all Provincial or OGD requests for transport support are to be submitted through the appropriate chain to EPC. At each level the request is to be scrutinised to see whether it can be met by from within that Government/Departments own resources, and authority. Any request for DND support received by EPC is to be passed immediately to NDCC and then NDMCC (J4 Mov Ops) to establish how the request can be met. In turn any requests outside of DND's capability will be submitted to EPC for final consideration.

INTENTIONALLY BLANK TO BE REPLACED BY TRANSPORT CANADA NEW ORG CHART

SECURITY CLASSIFICATION (as appropriate)

**FORMAT FOR REQUEST FOR TRANSPORTATION SUPPORT
(TO BE TRANSMITTED THROUGH THE CHAIN OF COMMAND TO NDHQ NDCC)**

REQUEST FOR AIR/RAIL/SEA TRANSPORTATION (delete as appropriate)	
From (Originating HQ)	
Reason for Request	
Transport required at (starting location) by DTG	
Transport Destination (location) by DTG	
Load Description (Pax, Cargo, Vehs etc)	
Quantity/Weight/Cube	
Passenger (Pax) Service reqd	
Dangerous Goods Details	
Acceptance/Non Acceptance Decision reqd by DTG	
OPI/POC for this request	
Remarks	

Requested by: _____

Date & Time Request Sent: _____

SECURITY CLASSIFICATION (as appropriate)

SECURITY CLASSIFICATION (as appropriate)

Higher HQ

Received by: _____ Date & Time Request Received: _____

Date & Time Receipt Acknowledged to requesting HQ: _____

Request Supported/Not Supported _____ Met/Not Met

Date & Time Request Passed to Next Higher HQ: _____

Date & Time requesting HQ advised of decision/actions: _____

Next Higher HQ

Received by: _____ Date & Time Request Received: _____

Date & Time Receipt Acknowledged to requesting HQ: _____

Request Supported/Not Supported _____ Met/Not Met

Date & Time Request Passed to NDHQ NDCC: _____

Date & Time requesting HQ advised of decision/actions: _____

NDHQ NDCC

Received by: _____ Date & Time Request Received: _____

Date & Time Receipt Acknowledged to requesting HQ: _____

Date & Time passed to NDMCC (J4 Mov Ops): _____

Request Supported/Not Supported _____ Met/Not Met

Date & Time Request Passed to EPC: _____

Date & Time NDCC/J3 Ops advised of options/actions: _____

SECURITY CLASSIFICATION (as appropriate)

CHAPTER 5

NORTH ATLANTIC TREATY ORGANISATION (NATO)

SECTION 1 – NATO ORGANIZATION

INTRODUCTION TO NATO

1. The North Atlantic Treaty of April 1949 brought into being an Alliance of independent countries. Created within the framework of Article 51 of the United Nations Charter, the Alliance is an association of free states united in their determination to preserve their security through mutual guarantees and stable relations with other countries.

2. The North Atlantic Treaty Organisation (NATO) is the Organization that serves the Alliance. It is an inter-governmental organization in which member countries retain their full sovereignty and independence. The civil/military structure of the Organization, shown at Annex A, provides the forum in which they consult together on political and military matters affecting their security.

3. A joint civil/military aspect runs throughout NATO. Although certain topics may be dealt with entirely within the military organization and be decided by the Military Committee, there are few aspects of logistics that do not involve the civil staff. At NATO Headquarters, therefore, there is constant liaison between the International Military Staff (IMS) who support the Military Committee (MC), and the civil International Staff (IS).

NORTH ATLANTIC COUNCIL

4. The North Atlantic Council (NAC), established by Article 9 of the Treaty, is the highest authority in NATO. The Terms of Reference (TOR) of the Council are the North Atlantic Treaty itself. As a member, Canada has equal rights to express its views around the Council table and agreement by common consent is the rule. To assist it in its work the Council has set up a number of committees, which are listed at Annex B. These committees, whether civil or military, act under the authority of the Council.

5. **Defence Planning Committee.** Defence matters are dealt with by the Defence Planning Committee (DPC), composed of representatives from the member nations participating in the NATO defence planning process. Within the field of defence, the DPC has the same function and authority as the Council.

6. **Military Committee.**

a. The Military Committee (MC) is the highest military authority in NATO. It is composed of the Chiefs of Defence Staff (CDS) from each nation except France. Nations appoint a permanent Military Representative of their CDS as a member of the MC in permanent session.

b. The task of the MC is to advise the NAC or DPC on military matters and to give direction to the Strategic Commands (SC). It is the body to which the SCs are responsible.

7. **International Staff.** The International Staff (IS) comprises the Secretary-General, the Deputy Secretary-General, a number of independent offices, and five Divisions each headed by an Assistant Secretary General.

8. **International Military Staff.** The International Military Staff (IMS) provides staff support for the MC; the IMS drafts policy and plans, initiates studies, and implements MC decisions. It co-ordinates comments on proposals concerning military matters made by nations, or SCs, and refers them to the MC. The NATO military structure is at Annex C.

PARTNERSHIP FOR PEACE

9. In January 1994 the Partnership for Peace (PfP) program was launched with the aim of enhancing stability and security throughout Europe. This program is addressed to all member states of the Organisation for Security and Co-operation in Europe (OSCE) and goes beyond dialogue and co-operation to forge a real Partnership. PfP seeks to expand and intensify political and military co-operation in Europe. NATO and partners work towards transparency in defence budgeting, promoting democratic control of defence ministries, joint planning, joint military exercises, and creating an ability to operate with NATO forces in such fields as peacekeeping, search and rescue (SAR) and humanitarian operations, and others as may be agreed. At their Spring 1997 Ministerial meeting NATO Foreign and Defence Ministers agreed an enhanced PfP programme, with a more operational role, stronger political consultations and increased opportunities for partners to participate in PfP decision making and planning activities. The most recent development to this program, has been the admission of Poland, Hungary and the Czech Republic to the NATO Military structure.

NATO COMMAND STRUCTURE

10. The revised NATO command structure is at Annex D.

SECTION 2 - THE ALLIANCE'S STRATEGY

INTRODUCTION

1. The Alliance's Strategic Concept was agreed by the NAC at Rome in November 1991. The security challenges and risks that NATO now faces are different in nature to those in the past. The threat of a simultaneous, full-scale attack on all of NATO's European fronts has effectively been removed and in contrast the risks to Allied security are multi-faceted and multi-directional in nature. The multi-faceted and multi-directional nature of the threat makes them hard to predict and assess. While the end of East-West confrontation has greatly reduced the risk of major conflict in Europe, there is now a greater risk, of lower levels of crisis arising, any of which could develop quickly require a rapid response.

FORCE STRUCTURES

2. In the context of lower level, risks, NATO has planned for substantial reductions in active force levels. However the less predictable, and more diverse potential security risks have led to the requirement for greater mobility, flexibility and versatility in the military resources available to support Alliance interests. The restructuring of NATO's military potential into Main Defence, Reaction and Augmentation Forces marks a move away from the previous largely in-place, high-readiness defence arrangements. In the new structure the majority of forces will be kept at lower readiness, frequently at only partial peacetime manning levels.

MAIN DEFENCE FORCES

3. The backbone of NATO's military capability will be provided by Main Defence Forces (MDF). The MDF stand in their own right as the primary military contribution to stability and security throughout NATO. For several Allied nations MDF represent the most important component of regional defence capability, and they are the basis for generating other categories of forces.

4. MDF constitute the major portion of the force structure; they comprise both multinational and national formations at varying levels of readiness, including some at high readiness, which could be employed for crisis management.

REACTION FORCES

5. Reaction Forces, consisting of ground, air and maritime elements at relatively high readiness, form only a small part of NATO's total available military resources. Together with some MDF elements (regional Ready Manoeuvre Forces, established for primary defence at short notice) the Reaction Forces are designed as mobile and flexible crisis management tools. As such they offer a range of military options to NATO's political leadership in times of tension including:

- a. Immediate Reaction Forces (IRF). Smaller, more responsive forces (multinational brigade-size formations selected for deployment from available battalion size units - with air and maritime IRF of comparable size).
- b. Rapid Reaction Force (RRF). The multinational ACE Rapid Reaction Corps (ARRC) which is capable of deploying up to four task-organized multinational and national divisions and brigades (and air and maritime RRF of comparable size).

AUGMENTATION FORCES

6. European or North American forces, other than main defence or reaction forces, provided as reinforcements to contribute to deterrence, crisis management and defence are known as Augmentation Forces.

CANADIAN CONTRIBUTION TO NATO

7. Owing to financial constraints, Canada has to be selective in its commitments. Nevertheless Canada retains the capability to make a significant contribution to international peace and stability, within a UN framework, through NATO or in coalitions of like-minded countries.

8. The Canadian Forces (CF) participate in multilateral operations anywhere in the world under UN auspices, or in the defence of a NATO member state, and, to that end the CF are to:

a. be able to deploy, or re-deploy from other multilateral operations, a task force headquarters and, as single units or in combination, one or more of the following elements:

- (1) a naval task group, comprising of up to 4 combatants and a support ship, with appropriate maritime air support;
- (2) three separate battle groups or a brigade group comprising three infantry battalions, an armoured regiment and an artillery regiment, with appropriate combat support and combat service support;
- (3) a wing of fighter aircraft with appropriate support; and
- (4) one squadron of tactical transport aircraft.

b. provide within three weeks, single elements or the vanguard components of this force and be able to sustain it indefinitely in a low threat environment;

c. provide within three months, the remaining elements of the full contingency force; and

d. earmark an infantry battalion group as either a stand-by force for the UN, or to serve with the NATO Immediate Reaction Force.

9. This contribution to NATO represents a commitment of 4,000 personnel if the vanguard elements are deployed simultaneously. The fully deployed force could conceivably involve in the order of 10,000 personnel.

REINFORCEMENT CONCEPT

10. The NATO Concept of Reinforcement reflects and amplifies the Alliance Strategic Concept and defines the role of reinforcement in contributing to conflict prevention, crisis management and defence. The ability to build up forces at the right time and place has become of increasing importance.

11. Reinforcement is the process of relocating forces to any area at risk within NATO to strengthen military capabilities. Thus reinforcement as a contribution to the build-up of forces becomes one of the primary military instruments available to the political leadership.

SECTION 3 - NATO CONCEPT FOR MOVEMENT AND TRANSPORTATION

ALLIED MOVEMENT AND TRANSPORTATION SYSTEM

1. The Movement and Transportation (M&T) Concept for NATO is contained in MC 336/1, and progressively amplified in AJP 4 and AJP 4.4. The Allied Movement and Transportation System (AMTS) must be capable of responding flexibly to any crisis and should make best use of national resources and the NATO organization. Whilst nations have the responsibility to deploy their forces, the management process must incorporate the flexibility to co-ordinate movement at the Strategic Command (SC)/Regional Command (RC) /Joint Sub Regional Command (JSRC) level, and if necessary provide guidance on priorities to both sending and host nations (SN/HN). A mechanism must also be in place to enable nations to provide mutual support using military movement and transport resources, and to make best use of available resources to meet the NATO requirement. The NATO M&T Structure for CJTF and Non-Art 5 operations is shown at Annex E.

2. Some civil transportation resources will be limited, in particular, shipping and specialist air cargo aircraft, and nations may be in competition. When it becomes evident that a shortage of resources will occur then a more centralized overview of the situation will be required, to co-ordinate the acquisition of assets and to avoid nations competing against each other. NATO HQ can provide an appropriate network of contacts with nations and industries in order to maximize potential availability and assist nations and SCs in their task.

3. Within the AMTS the following key areas of activity must be addressed:

- a. the acquisition of transportation and other support resources sufficient to meet Alliance movement requirements;
- b. the effective and efficient planning and direction of movements to support Alliance deployments operations;
- c. the command and control of Alliance transportation resources;
- d. the close co-operation and co-ordination between civil and military support planning and transport resource acquisition agencies at NATO and national level; and
- e. the use of central points of contact at both NATO and national level, and at each appropriate and practical point in the movement and transportation planning chain.

4. These areas and other related functions are integral to the management concept of the AMTS. The AMTS incorporates NATO and national military and civil M & T organizations and is based upon agreed principles and policies, thus resulting in a delineation of tasks and responsibilities and the development of procedures for the support of NATO's mobility requirement.

NATO TASKS AND RESPONSIBILITIES

5. **NATO HQ.** Because of the presence of the NAC, the Defence Planning Committee (DPC) and national delegations, NATO Headquarters is the preferred choice to:

- a. formulate, provide guidance on and approve missions (through the NAC/ DPC as appropriate) in support of NATO operations;
- b. advise on the availability and use of civil transportation resources and related infrastructure in support of both military and civil tasks;

- c. assist in the acquisition of civil resources by, but not limited to, co-ordination with SC, national delegations and the civil transportation management organization of the Senior Civil Emergency Planning Committee (SCEPC) and, during crisis, its Civil Emergency Crisis Cell (CECC);
- d. harmonize and standardize civil procedures relating to transport for defence purposes;
- e. when required, the NATO Maintenance and Supply Agency (NAMSA) can provide contracting assistance to the SCEPC, Allied Movement Co-ordination Centre (AMCC), or nations; and
- f. prepare for transition to the operation of NATO Civil Wartime Agencies (NCWA) in case of a major conflict.

6. **Strategic Commands (SCs) Movement and Transportation (M&T) Staffs.** The roles and responsibilities of the SCs M & T staff are to:

- a. be responsible for matters concerning the development and implementation of strategic M & T plans, policies and procedures;
- b. review, prioritize, de-conflict and co-ordinate deployment and re-deployment plans for the movement of NATO and non-NATO Troop Contributing Nations' (TCNs) forces during exercises, contingency planning and operations;
- c. act as the M&T interface between the SC, nations and external agencies, including European Union (EU) and NATO Transportation Planning Boards and Committees (PB&Cs);
- d. oversee the operational use (and any development as necessary) of the Allied Movement and Deployment System (ADAMS) for the flow of movement data of national Detailed Deployment Plans (DDP) in support of exercises and contingency operations and for development of the Multi National Detailed Deployment Plan (MNDPP);
- e. represent SC Logistics Division/C-41 Branch on M&T matters at the Senior NATO Logisticians Conference (SNLC) and the Movement and Transportation Advisory Group (MAG);
- f. provide the nucleus staff for the AMCC when activated (if required, the M&T staff will have to be augmented by the nations/other NATO commands); and
- g. act as the SC focal point for M&T crisis management prior to AMCC activation.

7. **Regional Commands (RCs).** The roles and responsibilities of the RCs M & T staff are to:

- a. develop and implement M&T directives, tasks, responsibilities and procedures with host nations (HN) and subordinate headquarters within the region;
- b. develop M&T plans as they apply to RC tasks;
- c. assist in the deployment of the CJTF HQ in co-operation with nominated Lead Nation (LN), when nominated as the parent HQ;
- d. maintain the necessary functional source documents for the RC, e.g. border crossing points, military route numbers;
- e. co-ordinate with the Nations, the SC, the Component Commands (CC) and the Joint Sub Regional Commands (JSRC), movements within the Region, if required;

- f. co-ordinate and provide for augmentation to the NATO M&T structure, if required;
 - g. recommend to the AMCC required changes concerning force deployment (desired order of arrival, etc), transportation for sustainment (re-supply), and redeployment; and
 - h. monitor, evaluate and provide continuous assessment to CINC RC of deployment, and the M&T situation in the AOR.
8. **Sending Nation (SN).** The Sending Nation (SN) national M&T structure obtains transportation resources and plans and controls the movement of national forces, and national components of multinational forces, from home bases to final destinations as defined in the Allied Disposition List (ADL). Although organization will vary from nation to nation, SNs co-ordinate their efforts through their Ministry of Defence to the AMCC. Within a theatre, SNs will normally use a National Support Element (NSE) to co-ordinate their requirements with the HN National Movement Co-ordination Centre (NMCC) and Joint Sub Regional Command (JSRC)/Combined Joint Task Force (CJTF). Tasks and responsibilities that would generally be undertaken by the SN are as follows:
- a. plan and control the movement of national forces and national components of multinational forces, taking into account the NATO Commanders' operational requirements;
 - b. determine movement requirements and make necessary transportation arrangements; then identify to SCs the shortfalls and surpluses in national M&T resources to meet foreseen Alliance movement options;
 - c. control and operate civil and military transportation resources for national and allied forces support;
 - d. respond to requests to allocate transportation resources to another nation, in order to meet SC priorities; and
 - e. provide national liaison to the AMCC and the NMCCs as necessary.
9. **Host Nations (HN).** The HN should establish a HN National Movement Co-ordination Centre (NMCC) to control and co-ordinate movement of Alliance forces on its own territory. The organisation of the NMCC (as well as the associated executive Movement Control (Mov Con) and Traffic Control (TC) units) and their related support, is at the discretion of the HN but should include the required links with the organizations responsible for airspace and sea-route control. When established, the NMCC should include representatives of the sending nations (SN) involved (e.g. NSE) and a representative of the NATO commander, if required. The NMCC should provide liaison to the AMCC as necessary. Tasks and responsibilities that would generally be undertaken by the HN NMCC are as follows:
- a. approve, co-ordinate and control all movements (air, sea, and inland surface) of the forces on the territory of the HN in accordance with the MNDDP;
 - b. arrange and co-ordinate with neighbouring nations border crossing;
 - c. control and/or facilitate the use of their national civil and military M&T resources provided on the request of the SN;
 - d. approve, co-ordinate and control all movements (air, sea, and inland surface) related to the reception and onward movement (to the final destinations) of the forces on its territory in accordance with the MNDDP; and
 - e. in addition to the theatre HQ, approve, co-ordinate and control all movements related to the employment of the forces on its territory in accordance with the Operational Plan (OPLAN) of the Commander JSRC/CJTF, with the exception of a defined force employment area. In this

area, based upon agreements e.g. Memorandum of Understanding - (MOU), approval, co-ordination and control of movements will be delegated, partially or totally, to the Commander JSRC/CJTF.

10. **Lead Nations (LN).** A Lead Nation (LN) is a nation that accepts responsibility for planning and controlling deployment, transportation for sustainment (resupply), and redeployment as well as obtaining transportation resources for multi-national headquarters (MN HQ) and or units with a high degree of multi-nationality. Alternatively a LN is one that accepts responsibility for performing specific M & T tasks as identified by NATO in co-operation with the nations. It conducts, either partially or totally, the tasks and responsibilities of a HN in the case where no HN exists, or by agreement between SNs and HN. The organization required is at the discretion of the nation assuming LN responsibilities. Tasks and responsibilities that would generally be undertaken by a LN are identical to the Sending Nation and / or Host Nation tasks and responsibilities.

Remark: Compensation and/or reimbursement for LN functions must be agreed between all parties involved prior to a nation accepting a LN role.

SECTION 4 - CIVIL SUPPORT TO MILITARY PLANNING

SENIOR CIVIL EMERGENCY PLANNING COMMITTEE (SCEPC)

1. The framework to provide a proactive civil response to NATO M&T requirements exists within the SCEPC, which has well-established links between the military and civil transport agencies. Peacetime operational support evolves from the Civil Emergency Planning Directorate (CEPD) of NATO HQ. The NATO and national military requirement is for a civil transportation capability under SCEPC that can perform the following minimum functions to support the Alliance's preparedness and ability to conduct strategic and operational movement:

- a. advise on the capability, availability and use of civil transportation resources for strategic and operational mobility;
- b. advise on remedies to identified, or potential, shortfalls in reception and strategic lift;
- c. assist in assessing the feasibility of multinational M&T plans with regard to the use of civil transportation resources by participating in the Alliance M&T planning process, as well as through participation in training events and military exercises;
- d. assist in managing the operation of any Alliance programme for pre-committed civil transportation resources;
- e. when requested, assist the AMCC in the co-ordination and de-confliction process of transportation aspects of MNDDPs;
- f. monitor and forecast the impact of NATO military operations on civil transportation markets and inter-modal systems;
- g. advise on the best approach to the commercial market, and upon request, assist in the co-ordination of chartering of civil transportation and/or facilitate contracting through the NATO Maintenance and Supply Agency (NAMSA);
- h. advise on charter rates, insurance and other financial aspects of utilizing commercial transportation; and
- i. assist in the review of transportation data files and elements in ADAMS from a commercial transportation viewpoint, and assist in future development and database management.

2. During a crisis situation and upon direction from the NAC, or request from a nation, the SCEPC activates as required the Civil Emergency Crisis Cell (CECC). The types of support provided by the civil transport experts are listed at Annex G.

3. Under the guidance of the SCEPC, the three civil transport-oriented Planning Boards and Committees (PB&Cs) deal with M&T problems to meet vital civil and military requirements, including (if required) those for peacekeeping as follows:

- a. the Planning Board for Ocean Shipping (PBOS);
- b. the Civil Aviation Planning Committee (CAPC); and
- c. the Planning Board for Inland Surface Transport (PBIST).

4. All NATO nations are members of these bodies and NATO Commanders are represented to ensure that plans meet military requirements. Their general tasks are:

- a. the co-ordination of civil transport planning and the solution of difficulties, identified by nations or NATO Commanders, in meeting transport requirements from existing resources;
- b. advancing proposals for mutual assistance, advising on re-allocation of tasks amongst nations, and identifying essential improvement to existing transport facilities; and
- c. advising on the harmonization of the implementation of legislation for Alliance movement and transportation co-operation.

PLANNING BOARD FOR OCEAN SHIPPING (PBOS)

5. In peace, crisis or war, the majority of materiel and supplies for nations deploying and re-deploying will move by sea. Nations will look to commercial avenues of shipping support for deployment of their equipment and sustainment of their forces on a day to day basis.

6. PBOS was established by the North Atlantic Council in 1950. PBOS plans for the provision of transportation of personnel and goods by sea in crisis and war within and outside the North Atlantic area. PBOS operates on the principle that shipping cannot be treated on a regional basis and that the world-wide interrelation of all shipping activities must be taken into account in securing the benefit of shipping services, including vessels and facilities controlled by countries not party to the North Atlantic Treaty.

7. In carrying out its functions, PBOS allows for the needs of countries and territories outside the North Atlantic area for which a measure of shipping responsibility might have to be borne in wartime. However, PBOS will continue planning for crisis management arrangements, particularly for situations in which shipping resources needed to support the Reinforcement Concept would not be available, as required from the commercial market. Further, PBOS should maintain close liaison with CAPC and PBIST to ensure optimal operational readiness of civil transport assets to support military requirements.

8. In crisis, nominated shipping experts augment the CECC. In the event of general war, the Defence Shipping Authority would be established.

CIVIL AVIATION PLANNING COMMITTEE (CAPC)

9. The operations of civil aviation resources remain under national sovereignty and authority for all practical purposes. The emphasis of NATO planning for air transport is therefore on co-operation and co-ordination. In peacetime this is the responsibility of the Civil Aviation Planning Committee (CAPC), assisted by its Civil Aviation Working Group in carrying out technical and practical planning.

10. CAPC operates on the principle that civil aviation cannot be treated on a regional basis and that the world-wide inter-relation of all aviation activities must be taken into account. The general and primary aims of civil aviation planning in NATO are to assist in maximizing the availability of civil aviation resources of member nations in crisis and war, and to optimize the Alliance's use of them in support of both military operations and essential civil requirements.

11. In carrying out its task, the CAPC will:

- a. monitor and co-ordinate, as appropriate, the development of relevant national plans concerning the availability and responsiveness to the Alliance of civil aviation resources;
- b. assist in the planning for the use of civil aviation in support of the new reinforcement concept; and
- c. develop appropriate civil aviation crisis management arrangements.

12. In crisis, nominated civil aviation experts augment the CECC. In the event of general war, the NATO Civil Aviation Agency would be established.

PLANNING BOARD FOR INLAND SURFACE TRANSPORT (PBIST)

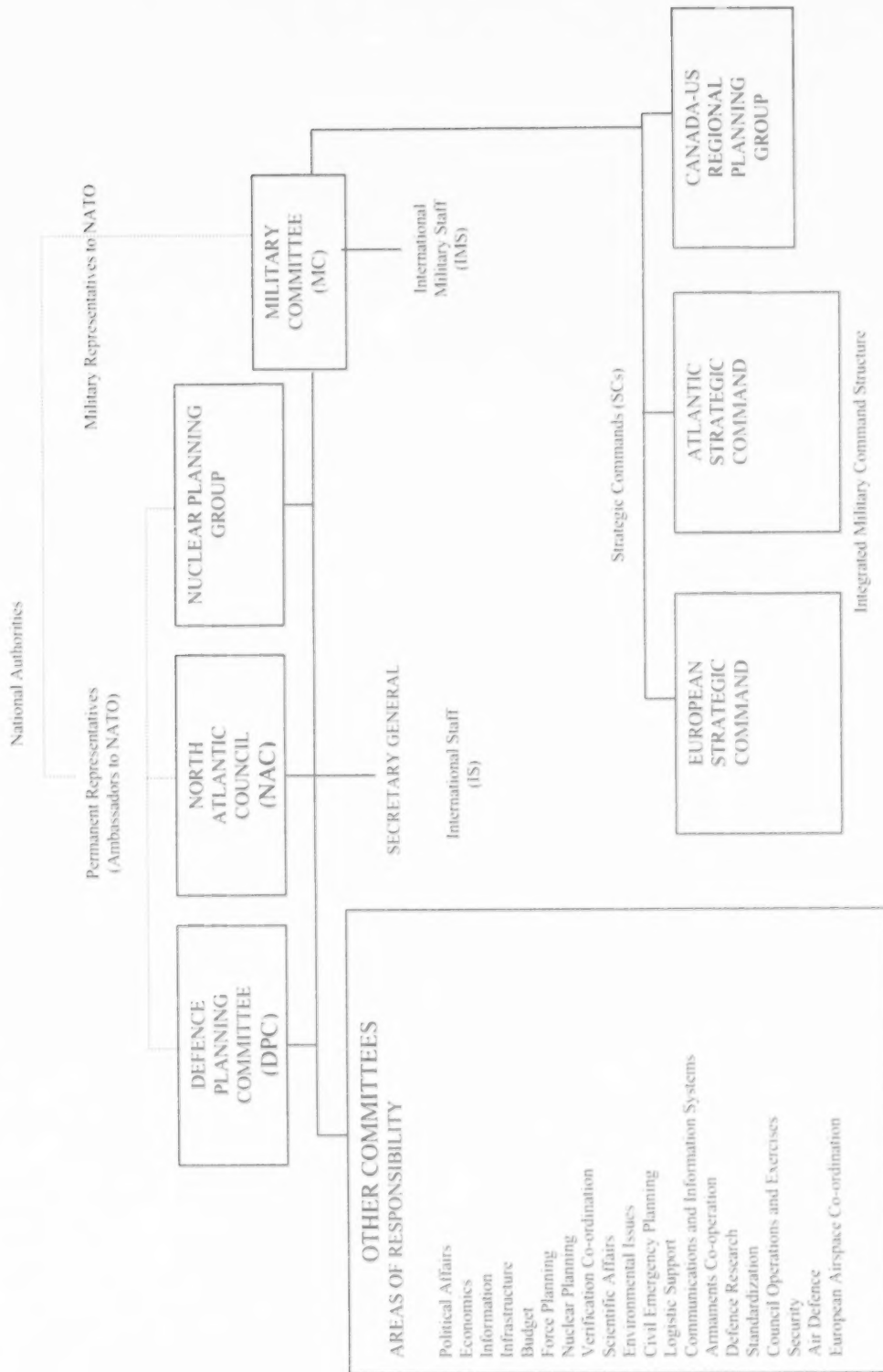
13. Inland surface transport (road, rail, ports, inland waterways) remains under national control for all practical purposes. The emphasis of NATO planning for inland surface transport is, therefore, on co-operation and co-ordination. In peacetime, this is carried out by the Planning Board For Inland Surface Transport (PBIST), a Civil Emergency Planning body.

14. In co-operation and co-ordination with the other Civil Emergency PB&Cs and NATO Military Authorities (NMAs), PBIST deals with:

- a. developing Alliance policies, arrangements and procedures for the co-ordination of the use of civil inland surface transport resources to meet civil/military requirements;
- b. assisting the National and NMAs in the planning for the M&T of military ammunition, explosives and hazardous material in times of peace, crisis and war;
- c. developing appropriate machinery, policy and procedures for the acquisition and use of civil inland surface transport including containerization;
- d. monitoring the effect of European Union (EU) legislation on military movement in supporting the Alliance Strategy, including border crossing;
- e. advising National and NMAs on the implication of civil technical developments; and
- f. assisting in the development harmonization of national transport legislation to facilitate M&T planning.

15. In times of crisis, nominated national inland surface transport experts would augment the CECC. In the event of general war, two NATO Civil Wartime Agencies (NCWAs) are established; the Agency for the Co-ordination of Inland Surface Transport in Central Europe, and the Southern Europe Transport Organization in conjunction with PBOS.

NATO's CIVIL AND MILITARY STRUCTURE

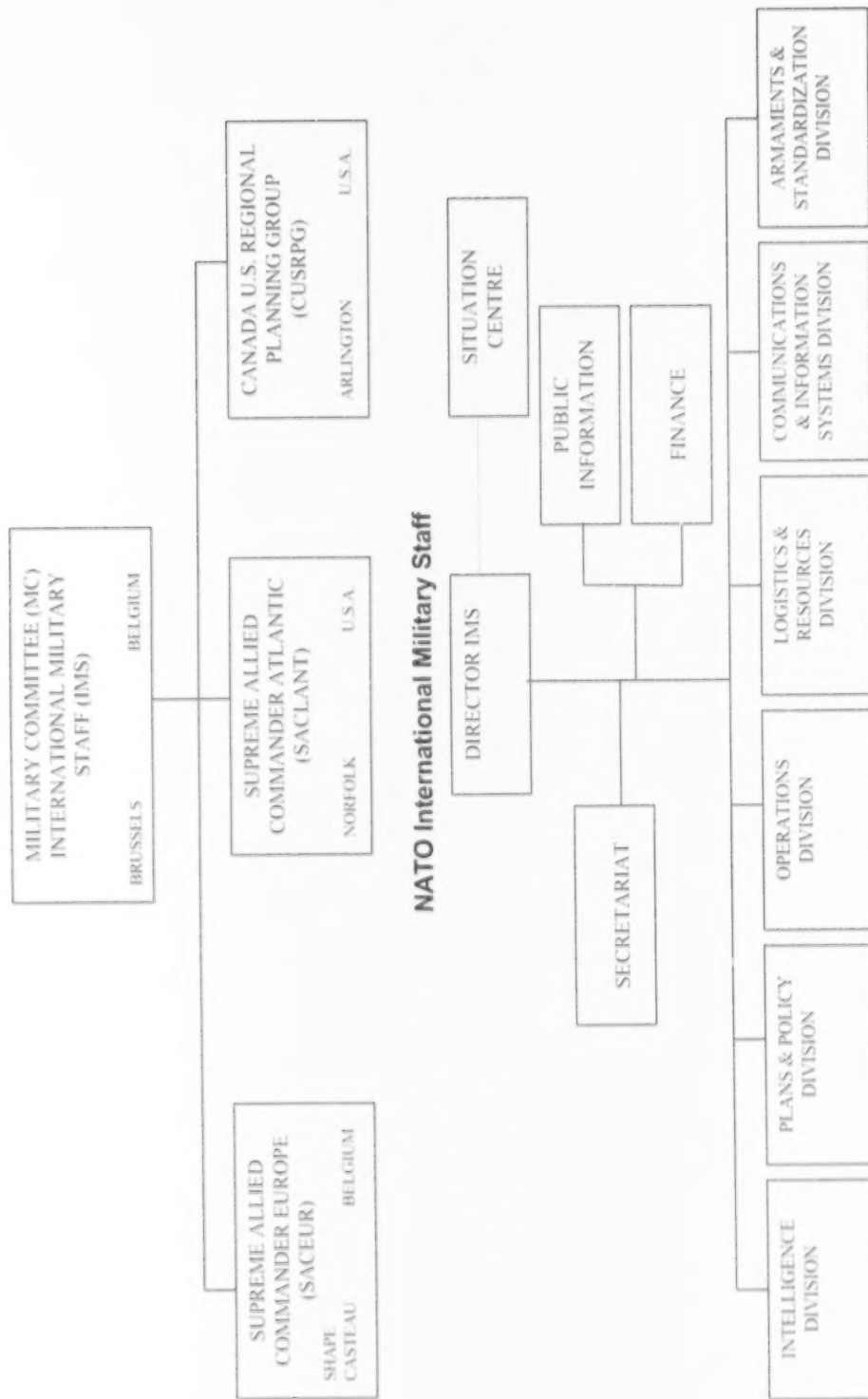


PRINCIPAL COMMITTEES OF THE COUNCIL



Most of the above committees report to the Council. Some are responsible to the Defence Planning Committee or Nuclear Planning Group. Certain committees are joint civil and military bodies which report both to the Council, Defence Planning Committee or Nuclear Planning Group and the Military Committee.

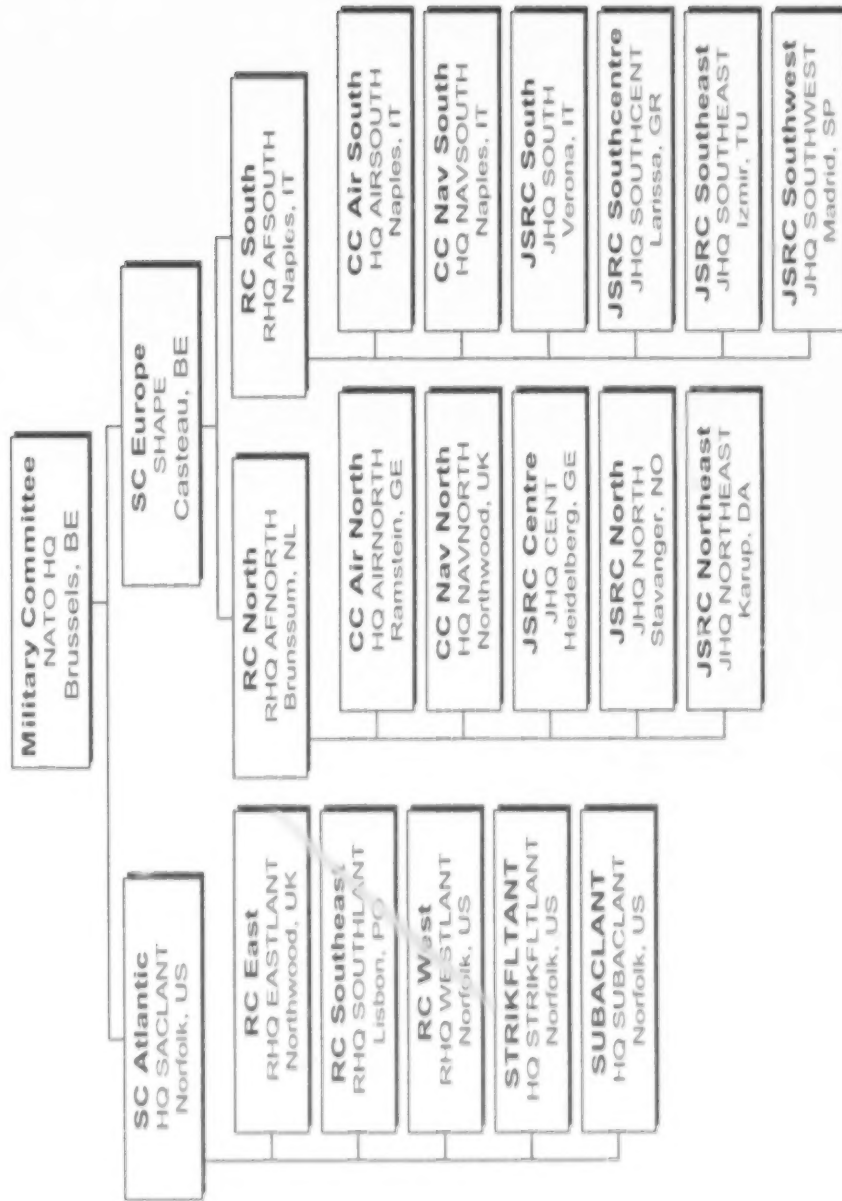
NATO MILITARY STRUCTURE



NATO International Military Staff

THE NATO MILITARY COMMAND STRUCTURE

Source: NATO Allied Joint Publication 2.1



ALLIED MOVEMENT CO-ORDINATION CENTRE (AMCC).

MISSION

1. The Allied Movement Co-ordination Centre (AMCC) is to manage strategic movement, which encompasses the overall deployments, transportation for sustainment (re-supply) and redeployments from home bases to final destinations, as defined in the Allied Disposition List (ADL), which also includes the designated NATO commanders requirements, objectives and priorities. In this respect the AMCC, in co-operation with nations, constructs the Multi National Detailed Deployment Plan (MNDDP) and addresses strategic lift shortfalls.

ORGANIZATION

2. The core staff of the AMCC is provided from the Peacetime Establishment of the Strategic Command (SC) Europe Movements Branch or the SC Atlantic Movements and Transportation (M&T) Staff of C-41. This core staff will need to be augmented by M&T staff from other NATO formations, agencies, and nations. The AMCC may include liaison officers from Sending Nations (SN) and Host Nations (HN) whose territories the force will deploy through or into, and assistance from representatives of the transportation Planning Boards and Committees (PB&Cs).

3. The AMCC stands up and is stood down on the authority of SACEUR or SACLANT prior to the first Movement Planning Conference, which in turn follows shortly after the Force Generation Conference. National M&T officers would liaise closely from this time and, as necessary, could be collocated with the AMCC. The augmentees and liaison officers would be likely to remain with the AMCC until the deployment phase of an operation is completed. The AMCC would normally be stood down upon the completion of the redeployment phase of an operation. The AMCC will be located in the relevant HQ SC.

TASKS AND RESPONSIBILITIES.

4. The tasks and responsibilities of the AMCC are as follows:

- a. to serve as the primary M&T point of contact for nations and NATO military authorities;
- b. to review, prioritize, de-conflict and co-ordinate deployment, transportation for sustainment and re-deployment plans for movement of NATO and non-NATO SNs forces during exercises and operations;
- c. to use the Allied Movement and Deployment System (ADAMS) for the flow of movement data, and to construct the MNDDP in support of exercises and operations;
- d. to co-ordinate the movement of forces, as well as the transportation needed for sustainment (re-supply) in accordance with the NATO commander's operational requirements;
- e. if requested by nations, to facilitate the acquisition and management of commercial or military transportation assets;
- f. to identify M&T tasks requiring lead nation (LN) support and seek agreement for a nation to accept these tasks;
- g. to monitor the execution of the deployment and provides nations with relevant information on the overall M&T situation so that adjustments can be made;
- h. to assist the designated NATO commander in resolving M&T issues that might require support or decisions from SNs; and

- i. to action transportation requests from NATO commanders for lift assets.

CIVIL TRANSPORTATION EXPERT SUPPORT

Within the structure of the Senior Civil Emergency Planning Committee (SCEPC), civil transport experts provide information and offer assistance to NATO military planners as needed. However, from the deployment planning sequence it is possible to identify areas where civil transport expert advice may be required in the various stages of an operation and an exercise. These areas are:

a. Operational Planning Phase. During operational planning, the SCs should seek the advice of strategic-oriented civil experts to assist in developing the Allied Disposition List (ADL), specifically the Commander's Required Date (CRD) by:

- (1) developing assumptions about civil transport infrastructure and capabilities;
- (2) providing an initial assessment of gross requirements for and potential availability of civil transport assets; and
- (3) assisting with the selection of civil ports of disembarkation (POD).

b. Movement Planning Phase. During development of the Multi- National Detailed Deployment Plan (MNDDP), the civil expert should assist the SCs in determining the civil transport feasibility of the plan and deconflicting national DDPs by:

- (1) monitoring and advising on market conditions;
- (2) assessing the total requirements for and availability of civil transport assets;
- (3) providing civil transport operations advice, such as cargo handling and use of containerization;
- (4) recommending solutions to overcome shortfalls in strategic lift; and
- (5) evaluating alternative ports of embarkation (POE) and PODs, routes and modes of transport (MOT) as required.

c. Execution Phase. Much of the assistance rendered during the movement planning phase would continue during the execution phase, although it may be more focused toward problem solving. Types of assistance may include:

- (1) monitoring and advising on immediate market conditions;
- (2) providing civil transport operations advice, such as cargo handling and use of containerization; and
- (3) facilitating access to transport markets for requesting nations and/or NATO organizations.

CHAPTER 6

CONTAINERIZATION

SECTION 1- INTRODUCTION

BACKGROUND

1. The operational capability of any military force is determined by the nature of its force structure, the type and quantities of equipment provided, the training of personnel in the force, the service support available, and the ability of commanders to control operations. Integral to this definition of operational capability is the need to initially mount and later sustain operations. The use of International Standards Organization (ISO) Containers (often referred to as Sea containers (SC), Twenty Foot Equivalent Units (TEUs) and ISOs) has become an essential element in meeting the transportation and storage requirements when mounting an operation. In the interests of standardization the term "Sea Container" will be used throughout this chapter. Up to date information on sea container management is maintained on the J4 Logistic Plans Website on the Defence Wide Area Network (J4 Log Plans DWAN Website).

2. The use of sea containers for the movement of general cargo or stores is a well-established and proven method. Future operations will be as dependent, if not more so, on this method of movement and the need for a comprehensive policy on the use of containers has become increasingly important.

AIM

3. The aim of this chapter is to provide a set of principles for the efficient use of sea containers in support of nationally controlled deployed operations.

OVERVIEW

4. This chapter encompasses the following key considerations:

a. **Common Standards.** Establishes common standards and specifications for the CF in order to establish a co-ordinated modus operandi for sea containers. Interoperability with other NATO, and other allied, nations is an essential element in the identification of common standards;

b. **Stuffing.** Provides guidance in the "stuffing" (packing) of sea containers. Care must be taken to correctly stuff sea containers, with due regard for the method of movement to be employed;

c. **Handling Systems.** Considers container handling system aspects. Sea containers require specialized handling systems that must be available throughout the whole route, over which the sea container will travel including the final destination.

d. **Leasing and Ownership.** Considers the CF options of whether to own or lease sea containers. Both options provide different advantages and disadvantages that are considered, and recommendations provided, to assist in reaching the most appropriate solution;

e. **Certification Requirements.** Details the requirements for inspection, certification and maintenance of sea containers (as each sea container requires inspection and certification before it can be used to transport materiel);

f. **Tracking.** Provides guidelines for the tracking of sea containers and their contents while in transit to, into and out of an area of operations (AO), as the CF requires visibility of material in transit and in theatre;

g. **Operational Reserve.** Identifies the quantities of sea containers required for an operational reserve, to support deployed operations, and discusses related control and custodial responsibilities. In order to mount and deploy a Task Force, the CF will require an operational reserve that can cater for the initial flow of materiel; and

h. **UN Mission Considerations.** Discusses the UN responsibilities regarding sea containers. Whilst the UN is responsible for the provision of certain items, individual mission requirements will be negotiated on a case by case basis.

SECTION 2 - HANDLING AND STUFFING

COMMON STANDARDS

1. **General.** Although sea container boxes are supplied commercially, in a number of shapes and sizes, the most commonly used is the 20 ft sea container constructed to ISO standards. Sea containers are available in different configurations, such as open or closed top, ventilated or non-ventilated, etc. The design of sea containers is tailored to meet the needs of the cargo being carried. Details such as lifting points and securing arrangements are configured to international standards, thereby easing the handling of sea containers worldwide. A summary of the key characteristics and uses of sea containers is provided at Annex A to this chapter.

2. **CF Standard.** In order to maintain the key elements of mobility, flexibility and inter-operability in the support of deployed operations, wherever possible, standard sea containers constructed of steel are to be utilised. The following dimensions should be considered as the norm, wherever possible, when considering leasing or purchasing sea containers to meet a movement requirement:

- a. Length - 20 ft;
- b. Width - 8 ft; and
- c. Height - 8 ft 6 in.

3. This standard takes into consideration that there may be occasions that will require the use of 40 ft sea containers to transport items such as helicopter blades, etc. It is also recognized that difficulties could be encountered with the in-theatre movement of sea containers if the container height exceeds the preferred CF standard of 8 ft 6 in. Personnel involved with such movements must consider this factor in their movement planning or, when appropriate, purchase sea containers that are lower in height.

4. **Refrigerated Containers.** Refrigerated sea containers, commonly called "Reefers" and referred to in this chapter as such, are an essential requirement for most deployments. The following additional standards for Reefers are identified as the norm for CF operations:

- a. **Temperature Range.** The internal storage temperature range should be from +50C to -25C and capable of operating in an ambient of +50C to -30C;
- b. **Refrigerant.** The refrigerant should be environmentally friendly with a "zero Ozone Depleting Potential (ODP) rating; and
- c. **Voltage.** There should be a dual-voltage transformer provision, quick-connect 190/230 volt-50/60Hz dual voltage transformer module, and 230 and 460 volt plugs.

STUFFING OF SEA CONTAINERS

5. The following is intended as a general guide to the filling of sea containers - a process known as "stuffing". These guidelines cannot cover all possible combinations of load and sea container as a good deal will depend on the knowledge, experience and "common-sense" of whoever is responsible for stuffing the sea container. Additional information regarding the packing of material and stuffing of containers can be found in A-LM-158-004/AG-001.

6. **Guidelines.** There are certain basic rules that apply to all types of stores in all freight containers. The tighter the stow, both lateral and longitudinal, the safer the contents. Free movement will generally lead to damage to the container and contents; a key principle for stuffing containers should be no movement of the contents. Other guidelines for the stuffing of sea containers are:

- a. individual packages must be secure within themselves and should be as full and as tightly packed as possible to resist external pressures;
- b. packages must be sufficiently firm and rigid to withstand the weight imposed on them when stacked up to a minimum of 8 ft;
- c. within practical limits the individual packages should be as large as possible. This increases the effective utilisation of space, makes for a stable load and reduces costs;
- d. all items stowed in a sea container must be compatible and conform to the appropriate modal dangerous goods regulations;
- e. all necessary precautions must be taken to guard against contamination and chemical reactions with other items or with the sea container itself;
- f. heavy items must be placed below light items, liquids above solids;
- g. a sea container should be loaded evenly throughout its length to achieve a balanced load;
- h. an end loading sea container, mounted upon a road vehicle, may be subjected to a downward slope of some 7 to 23 degrees towards the door end whilst being demounted. Any unavoidable gap in the stow, should be along the centre-line of the sea container rather than the walls. This allows easier access and requires the minimum of dunnage;
- i. the load should be distributed as evenly as possible within the sea container. In the case of an end loading sea container, the door end must not carry more than 60% of the total load and the closed end must not carry more than 65% of the total load;
- j. the location of the centre of gravity of the sea container is very important as an imbalanced load could cause the vehicle carrying it to tip over. As noted at ISO 8323-1985(E), cargo placement limits the centre of gravity to within the following envelope:
 - (1) plus or minus 10% of the external width, measured from the geometric centre;
 - (2) plus or minus 5% of the external length, measured from the geometric centre;
 - (3) between a height of 356mm (14in) to 1219mm (48in), measured from the bottom of the base;

Note: To obtain the above asymmetric conditions, cargo density is assumed to vary linearly.

- k. the floor of a sea container is capable of taking a uniformly distributed load equivalent to the maximum payload of the loaded sea container;
- l. the load should be stuffed such that it will remain in place and be easily extracted when the sea container is opened at the destination;
- m. the consignor should not use handling methods which cannot be emulated by the consignee;
- n. all dunnage must be clean and free from infestation;
- o. the floors of sea containers are not unduly robust and care has to be taken in the use of Material Handling Equipment (MHE);

p. the overall weight of the load placed in a sea container should not exceed the weight capacity of the vehicle and related handling equipment, which may have to carry the sea container in-theatre. As an example, if a 15 ton vehicle is to be used to carry the sea container, then the sea container should only be stuffed to 12 tons. This allows for the additional weight of a Palletized Loading System (PLS) or other equipment.

7. The sea container weight restriction should be in accordance with the carrying vehicle cargo capacity, and characteristics, and the stuffed weight should always include the weight of the sea container itself. Based on present, and proposed, holdings of vehicles to transport sea containers in-theatre, it is recommended that sea containers only be stuffed to 12 tons (including the weight of the sea container itself).

HANDLING SYSTEMS

8. **General.** Sea container systems themselves provide excellent security of materiel in transit and afford protection from both tactical and climatic conditions. However they are not capable of independent movement and do not have a self off-load capability and therefore require an infrastructure to support them. The guidelines presented below provide an overview of the types and quantities of Material Handling Equipment (MHE) that must be available in-theatre to support container activity and the related policy concerns:

a. **Rated Capacity.** Sea container handling and transportation equipment must be capable of handling a maximum payload (including weight of sea container and any applicable pallets/flat-racks) of 16 tons, except when another capacity has been specifically authorised by J4 Mov in consultation with J4 Log Ops. A corollary to this policy is the necessity to limit anticipated loads for this equipment to its rated capacity;

b. **Sea Shipment.** J4 Mov is to arrange for organic shipboard, sea container on/off-loading capability, where port facilities at a destination do not include organic sea container off-loading facilities;

c. **Inland Movement of Containers.** Movement of material forward from the Port of Disembarkation (POD) will only entail the use of sea containers if the destination agency has access to appropriate off-loading and handling equipment;

d. **Rail Shipment.** Contingents will not be scaled for specialised rail-containerised handling equipment. To that degree, inland shipment by rail will only be considered where there is appropriate container handling equipment at the destination and intermediate handling nodes;

e. **Use of Cranes as Sea Container MHE.** The primary purpose of cranes is not related to sea container handling, though they may be used for that purpose, when available. Accordingly, contingent scaling for cranes will not be predicated on anticipated sea container movement/handling; and

f. **Scale of Sea Container Handling Equipment.** Specific scales of sea container handling equipment will be authorised for each deployed contingent as part of that contingent's Table of Organisation and Equipment (TO&E). Final scaling developed for specific missions will be dependent upon the anticipated use of sea containers in the mission, the availability of sea container handling equipment from external agencies (e.g. NATO, UN) and the role of the Task Force (e.g. static vice mobile operations). Suggested scales of equipment are provided in Annex B.

SECTION 3 - ACCOUNTING FOR AND TRACKING OF SEA CONTAINERS

LEASING AND OWNERSHIP

1. **General.** The decision on whether to use leased or DND-owned sea containers will primarily be driven by three key factors; cost, availability and flexibility. If the only way to ensure that a sea container is available when required is to own it, then from the perspective of flexibility, ownership may be the best option. If the total cost to lease sea containers for the duration of a mission exceeds the purchase price, ownership is again likely to be the most appropriate option. The Life Cycle Materiel Manager (LCMM) will assist in the process of determining which method is most appropriate. Annex C highlights the key considerations for the use of sea containers for consumer logistics. In each case a recommendation regarding leasing or ownership is made, but in many cases there will be occasions when either option may be appropriate.

2. **Operational Considerations.** Within a theatre of operation there is the possibility that the operational environment could move swiftly from a benign to a hazardous situation, entailing significant risk in terms of damage or destruction to equipment. The governing principle for acquisition of sea containers is that they will be either obtained from an organic CF equipment inventory or purchased for use on deployed operations.

3. **In-Theatre Storage.** The use of sea containers in theatre for either temporary warehousing facilities or for the movement of materiel forward, supports the requirement for ownership of sea containers. Leased sea containers would normally be used where it is intended to deploy the sea containers to theatre, immediately de-stuff them and return the empty sea container to the contractor.

4. **UN/NATO Commitments.** In general, the fact that a mission is UN or NATO driven will have little impact on the choice of leasing or ownership. The static nature of UN missions might mean a greater requirement for secure storage in-theatre and reduced mobility requirements.

5. **Maintenance Concerns.** Any decision to own sea containers will have to take into consideration the cost to maintain them. This will include the requirement for secure storage, when they are not in use, and repair and certification requirements. These costs are particularly high in relation to reefers.

6. **Reefers.** The importance of having readily available reefer assets dictates that a limited number of DND-owned assets should be available to meet essential operational requirements. These reefers are used to hold perishable commodities, in-theatre and for their initial movement into theatre; this could include food or medical stores. Preventative maintenance must be provided for reefers, whether owned or leased, to ensure that breakdowns are minimized. The potential loss of food/medical supplies by breakdowns would more than substantiate this maintenance task. Experience has shown that the cost and difficulty of supporting old reefers in terms of manpower, serviceability, and logistics support has been greater than if new reefers had been purchased and preventative maintenance undertaken. The general life cycle of a reefer under normal conditions is 10-15 years. A comprehensive inspection of reefers held in stock is to be undertaken before acceptance for use, particularly operational deployment. In addition all contracts for new DND owned reefer units should include:

- a. clip-on generator sets which would allow for food and medical storage in staging areas where there is no alternative power source or when utilized in replacement of refrigerated trucks;
- b. environmentally friendly refrigerant; and
- c. a three year compressor warranty and a one year system warranty.

Note: These requirements, although initially costly, reduce overall support expenditures, are more environmentally acceptable, and allow for greater flexibility and operational availability.

7. **Exclusions.** The decision regarding purchase or lease of sea containers to support requirements such as command posts, observation posts, accommodation and perimeter fences is not part of this decision matrix. These alternative uses should not be considered for sea containers provided to support consumer logistics.

CERTIFICATION REQUIREMENTS

8. **General.** Certification of sea containers includes a full visual inspection of the sea container and current safety standard approval. This visual inspection consists of an extensive overview of the sea container itself checking for major discrepancies such as metal damage and improper seals. The safety standard approval (certification) consists of meeting the minimum safety standard as established by the Convention of Safe Containers (CSC). In general, all new sea containers should be certified, initially for a period of five years on purchase, and all used sea containers should be certified for thirty months on purchase. Additionally, renewal certification is limited to thirty months and it is primarily the issue surrounding this certification requirement that needs to be clarified.

9. **Compliance Requirements.** The CSC is the world standard for sea container inspection and maintenance repairs. Along with the ownership of sea containers, comes the requirement to follow the CSC regulations concerning the safety of these sea containers and the necessity to register CF examination and maintenance procedures with the Canadian Board of Steamship Inspection.

10. **Certification on Purchase.** In accordance with current market practices, for all sea containers purchased by DND, certification is the responsibility of the seller and the duration for the certification should be identified in the purchase agreement.

11. **Certification Renewal Requirements.** Sea containers, whether held in Canada, as part of an operational reserve, or being used to move material into, out of, or in-theatre, must have their certification maintained except where the operational/tactical situations dictates otherwise. In Canada or in-theatre, re-certification requirements should be met based on the best business case at the time. This could allow for contractor certification or for the use of in-house certification capability.

12. **Certification Capability.** The Institute of International Container Lessors (IICL) is the recognized worldwide leader in sea container safety policy and in promoting CSC safety regulations and standards. IICL provides the most internationally recognized certification capability certificate in North America.

13. **In-house Certification Programme.** Although considerable capability exists with industry to conduct re-certification in Canada, the same capability may not exist in-theatre. There is therefore an immediate need for an in-house capability to re-certify containers that are in-theatre. This CF certification requirement can be met by appropriately trained, support trades personnel, either deployed with the contingent or brought to the Theatre on a temporary basis. These "support trade" personnel could include Materiel, Traffic and Supply Technicians. As a minimum, 3 CSG will maintain an in-house certification capability. The SC LCMM will be the POC for this programme and will maintain an Inspectors list on the J4 Log SC web page.

14. **Maintenance Programme.** The CSC also details the requirement for the owner of sea containers to ensure their safety. To do this the CF must have sea container safety procedures consistent with CSC standards and register their maintenance programme with the Canadian Board of Steamship Inspection. In Canada or in-theatre, maintenance requirements should be met based on the best business case at the time. This could allow for contractor repairs or for the use of in-house certification capability.

15. **In-house Maintenance Programme.** As with certification, considerable capability exists with industry to conduct sea container maintenance in Canada, again such capability may not exist in-theatre. There is therefore a need for an in-house capability to repair in-theatre sea containers. This need may be met primarily by Materiel Technicians (MOC 441) deployed with the contingent, or by special maintenance teams deployed from Canada. Refrigeration and air conditioning equipment, as part of a

sea container, would primarily be the responsibility of MOC 621 (RM) technicians deployed with the Task Force or brought to the theatre on an "as required" basis

SEA CONTAINER TRACKING

16. **Registration.** With the growing numbers of sea containers in the CF inventory, it is imperative that an effective control system is established, in order to maximise their use. In accordance with the International Convention for Safe Containers, all sea containers purchased by the DND are to be registered with numbers assigned to the DND by the Bureau International Des Conteneurs (BIC). All containers are assigned unique numbers, based on BIC code, which is a ten digit alpha-numeric, unique to each sea container. The LCMM will assign the CFCU number for all CF sea containers.

17. **Identification.** Sea containers purchased by the DND, whether new or used are to be identified as CF sea containers. The designation CFCU followed by a 7 digit number code will be assigned by the SC LCMM.

18. **Tracking Method.** As sea containers are shipped they will be assigned a Transportation Control Number (TCN) which, when entered into the National Materiel Distribution System (NMDS), will enable the tracking of the container in transit. When the sea container reaches its final destination, the TCN record will be archived and the sea container location can then be easily traced. In order to ensure that each sea container is recorded, the following procedures would be followed:

- a. when consignments are first offered for shipment, a TCN is assigned and the consignment is marshalled for consolidation;
- b. when consignments are ready for shipment, the sea container is loaded and a master TCN, or Waybill (WSBL) number, is assigned to the sea container. Bar coded labels are then produced, showing the destination shipping address and TCN. Inherent in the WSBL will be the sea container information, i.e., the sea container serial number;
- c. bar codes are then affixed to the inside and outside of the doors of the sea container; and,
- d. actual receipt of the sea container will trigger the receipt of the consignments.

19. **Sea Container Contents.** The record for each sea container TCN will also include the TCNs of all consignments within it. Through the use of bar codes it may be possible to identify which items are within individual sea containers, without the need to open them. In addition, queries to NMDS can produce reports showing where items are in the transportation chain.

20. **Individual Sea Container Records.** Besides tracking sea container movement, provisions must be made for the administration and overall control of sea containers. All sea containers used for the movement of materiel are to be accounted for as "S" Class items under Serial Number Control. The requirement to keep detailed records of sea container movements and administrative details requires that an interface be built between NMDS and the CFSS. Once a requirement for a sea container has been identified, and the sea container stuffed, the information would be passed to the CFSS. The sea container CFSS information database would then be updated. This process would occur once more when the sea container is stripped, and receipted into the NMDS. The information contained in the database would be as follows:

- a. container type;
- b. certification and inspection details, and history;
- c. location;

- d. date of purchase, history and cost (if applicable);
- e. rental cost, and history (if applicable); and
- f. cost of repairs, and history.

NATIONAL SEA CONTAINER OPERATIONAL POOL

21. **General.** The requirement for an operational reserve of sea containers is based on experience in supporting previous deployments and on the estimates developed while planning for operations. This operational reserve consists of a number of types of CF owned sea containers that is known as the National Sea Container Operational Pool (NSCOP).

22. **Key Factors.** The following key factors have been considered in NSCOP:

a. **Self-sufficiency.** The normal degree of deployment self-sufficiency mandated by external authorities. For example that directed by NATO or the UN has been in the order of 30 Days of Supply (DOS). This is normally split up between the CSG and the tactical elements of the deploying Task Force. A sufficient quantity of sea containers must be available nationally to begin loading approx one half of this DOS requirement, while the remaining sea containers are secured by purchase or lease;

b. **Competing requirements.** The availability of sea containers to meet CF needs for a specific deployment cannot be assumed, especially as it is likely that the CF will be competing for resources. Past experience has shown that as the sea container industry reacts to competing requirements, there will be reduced availability, increased acquisition costs and delayed delivery times; and

c. **Time Lines.** Delays experienced in obtaining political clearance to initiate mounting preparations, highlight the importance of at least an initial quantity of owned sea containers.

23. **Recommended Holdings.** The following table provides the recommended number of sea containers to be held as the NSCOP. The NSCOP level is based on the requirement to deploy concurrently;

a. an Infantry Battalion (with organic combat support and combat service support elements), and

b. a Brigade Headquarters and Signals Sqn (including security elements consisting of an Infantry Company, with organic first/second line combat service support elements, a separate National Support Element (NSE) and aviation flight).

TYPE	DEPLOYED ELEMENT	CONTAINER COMMODITY LOAD	QTY
Cargo	NSE	7 DOS G&T and rations	70
	Tactical Units	Consumables - incl 9 DOS G&T and rations	80
	Medical	Supplies	5
	Air Element	Consumables including Aircraft Spares	15
	Contingent	Ammunition	80
Cargo Total:			250
Hazardous Materials	NSE	Stores	12
Refrigerated Containers	NSE/Med	Perishable Stores	15

Figure 6-1 - National Sea Container Operational Pool (NSCOP).

24. **Control and Custody.** Sea containers in the NSCOP are controlled by J4 Log. Custody of this NSCOP will be a 3 CSG and 7 CFSD responsibility. Sea Containers in this NSCOP will not be loaned out to meet storage or other domestic requirements unless authorised by J4 Log.

25. **Unserviceable Sea Containers.** Sea containers that are being returned from theatre to the NSCOP that are deemed to be no longer serviceable will have their registration numbers deleted, their lifting points removed and appropriate write-off action undertaken. This would allow for the sea container to be used domestically for storage and other requirements, while at the same time ensuring that they cannot be used inadvertently for the transportation of materiel. The CFCU number is to be reported to the LCMM.

26. **Disposal.** Once sea containers are no longer serviceable, and have had their registration numbers removed, the supporting Base, or National Support Element (NSE), can dispose of them as 'unserviceable'. Sea Containers that have been altered in the manner described for unserviceable sea containers would be disposed of through the supporting Base, or NSE, as scrap.

SECTION 4 - UN CONSIDERATIONS

UN RESPONSIBILITIES

1. For a UN deployment, the UN is normally responsible to provide the contingent with an adequate level of accommodation and warehousing capacity. The UN will attempt to meet this responsibility by providing hard-standing accommodation. Where such accommodation is not available, it is incumbent on the UN to provide such a capability in the form of sea containers or modular accommodation. Whatever the solution, any related procurement, lease, transportation and associated maintenance costs remain a UN responsibility. Additionally, the UN responsibility to provide refrigerated capacity is based on the UN ration standards, along with the requirement to warehouse other climate-sensitive materiel, such as medical supplies and blood/blood products. The responsibility to provide non-refrigeration capacity must be determined between the contingent and the specific UN mission authorities, based on local factors.

ACCOUNTING

2. Warehousing and accommodation containers provided by the UN remain the property of the UN. They are to be taken on charge by the contingent as UN Owned Equipment (UNOE), using the UN-assigned control number. This control number may consist of the serial number of the sea container or, alternatively, a separate UN inventory control number. Stocktaking of UNOE is to include all UN-provided sea containers on charge to the contingent.

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3. Any inability of the UN authorities to provide requisite levels of warehousing is to be referred to NDHQ J4 Log, along with documentation relating to the contingent's attempts to resolve the issue locally. There is to be no expenditure of Canadian funds or equipment to provide this support without prior approval of NDHQ J4 Log. When the UN is unable to provide fixed accommodation/warehousing facilities, the following factors should apply:

- a. the provision of modular or containerized facilities will be at no additional cost to Canada. The UN will be liable for the applicable leasing/procurement/loan or shipping costs incurred;
- b. the containerized accommodation/warehousing facilities are to be of an acceptable standard, in terms of structural integrity, protection of occupants/contents from the elements, serviceability of organic mechanical/refrigeration systems etc;
- c. the UN is responsible for providing adequate refrigeration (permanent, containerized or a combination of the two) to store fresh rations (in accordance with the UN ration standards) and other perishables such as medical supplies and blood products. Any additional refrigeration required to accommodate the increased ration entitlement under Canadian ration standards (which are generally more liberal than UN standards) is a Canadian responsibility. Canada is similarly responsible to provide the contingent with adequate refrigeration to store non-public materiel; and
- d. the UN responsibility for the provision of adequate warehousing capacity for materiel other than fresh rations and other perishables is more complex. A standard model cannot be developed which clearly establishes UN support responsibility in this regard. Thus, the determination of an appropriate level of UN responsibility to provide such materiel warehousing facilities, for non-perishables, must be left to each contingent.

SEA CONTAINER CHARACTERISTICS - OVERVIEW

1. **General.** The dimensions of a standard International Standards Organization (ISO) sea container are:
 - a. Length - 20 (normal) or 40 ft;
 - b. Width - 8 ft; and
 - c. Height - 4 ft 3 in, 8 ft, 8 ft 6 in, or 9 ft 6 in.
2. **Special Containers.** Chilled, frozen, and cryogenic cargoes are all routinely carried in commercial containerised tanks. A standard 20 ft ISO sea container has a payload in the region of 20,000 kg (20 tonnes). The tank version capacities are in the range of 20000-25000 litres. Refrigeration units for such sea containers are self-contained, whilst power supplies can be provided from containerised power packs. Alternatively 'clip-on' diesel generators are available for individual refrigerated containers.
3. **Adaptability.** Sea containers can be adapted in a number of ways to meet particular functions, but retain the basic ISO dimensional and constructional characteristics. Sea container wall construction can be adapted to allow connection of more than one sea container to create a larger internal volume. Sea containers can incorporate a space at each end for the fitting of utilities such as air conditioning and ventilation equipment. Internal arrangements can be infinitely variable to suit individual customer requirements.
4. **Transportation.** ISO standard sea containers can be carried in standard, commercial, road, rail, or sea transport. Two 20 ft sea containers (standard 8 ft 6 height) could be carried in a CC130 Hercules, if their total weight was below the calculated aircraft maximum payload, (but not one 40 ft container). They can be stacked laden/empty up to 9 high for the 20 ft and 7 high for the 40 ft variants.
5. **Lifting and Securing.** The standard ISO sea container includes corner castings at the four top corners, allowing lift by a standard spreader using twist locks, which rotate into the corner castings. There are similar castings at the bottom four corners, by which the sea container can be "locked onto" road vehicles/chassis, rail wagons, or into ships' decks. "Fork lift" pockets are fitted as standard.
6. **Sea Container types.** The following are the principal sea container types:
 - a. the 20 ft dry freight sea container is the most widely used sea container. It has a maximum payload of about 21,750 kg (21.750 tonnes) and is suitable for all types of dry cargo, including small vehicles, weapons and ammunition, however for CF purposes the maximum payload is not to exceed 12,000 kg (12 tonnes) to facilitate handling in theatre;
 - b. the 40 ft dry freight container has a 26,600 kg (26.6 tonnes) payload and 67m³ volume. It is not generally used for ammunition because of the density of such cargoes. It cannot be carried in a CC130 Hercules because of induced fuselage stresses;
 - c. the 40 ft high cube dry freight container is 9 ft 6 in high but with the same payload as a 40 ft dry. It has similar application and usage as the 40 ft dry box, but for light cargoes which "cube (or bulk) out" before they "weight out". This container type is increasing in usage in the commercial sector;
 - d. the 20 ft half height open container is used for low volume, dense cargoes. It allows twice the height for the volume space of one Twenty Foot Equivalent Unit (TEU) slot;

- e. the 20 ft open top container is designed for over height awkward cargoes and can be loaded through top or rear doors;
- f. both 20 and 40 ft refrigerated containers "reefers" are used for the transport and storage of chilled, frozen, or temperature sensitive cargoes. They comprise insulated container bodies complete with integral refrigeration and heating units operating within a temperature range of +50 C to -25 C in an ambient of +50 C to -30 C. Other features include dual-voltage transformers and 230 and 460 volt plugs;
- g. diesel generators are available as power packs between 248 and 356 KVA (220/440V 50-60 Hz 3-phase) in 20 ft containers, or clip on units for use with refrigerated boxes; and
- h. tank Containers are available for hazardous (corrosive, toxic, inflammable or noxious), semi-hazardous (alcoholic spirits, solvents, etc), non-hazardous (foodstuffs, wine) liquids. The capacity depends on specific gravity and will range from about 16,500-23,000 litres. There are also 17.2m³ gas tanks available for heavy gases such as refrigerants, or cryogenics (nitrogen, oxygen, helium, argon, etc).

SCALE OF ENTITLEMENT TO CONTAINER EQUIPMENT

UNIT	ENTITLEMENT	REMARKS
Each Battalion-sized Unit within the Contingent	1 x Rough Terrain Container Handler (RTCH)	Where the unit is not co-located with its Canadian Support Group (CSG)
Each Mission CSG/ NSE	1 x RTCH	
Each CSG/NSE	1 x Container Load Trailer (CLT) set	
Each Deployed Air Lift Control Element (ALCE)	1 x CLT set (complete with dual-container connector apparatus and power pack)	Required to facilitate the movement of containers on service airlift Power pack required to facilitate yard mobility
2 Air Mov Sqn (Trenton)	1 x CLT set	Connector and power pack required as detailed for the ALCE
3 CSG	3 x Container Stacker Units (CSU)	One CSU would be avail for deployment to the NSE in a theatre which possessed appropriate employment characteristics (e.g. flat terrain)
Each Contingent	Minimum of 2 x Palletized Loading System (PLS) vehicle suites Each suite to consist of prime mover, trailer, six pallet flat-racks and a Container Handling Unit (CHU)	PLS may be used to transport non-containerised material/ equipment (e.g. ROWPU, comms or other Special Equipment Vehicle (SEV) boxes which can be strapped to a flat-rack) Additional suites to be scaled based on contingent size, anticipated containerised or non-containerised PLS tasking volume and the tactical situation supporting containerised vice loose cargo movement

SEA CONTAINER LEASE AND OWNERSHIP CONSIDERATIONS

CONTAINER USE	LEASE	OWN	REMARKS
Movement of material into/out of theatre	X		The primary method of providing for sustainment of the mission should be with leased sea containers, whereby they are delivered to the theatre "de-stuffed" and returned to the contractor within 48 - 72 hours
Movement of material within the theatre		X	Initial deployment should be conducted using DND owned sea containers These could then stay with the Task Force to meet related consumer logistic needs Leased sea containers have a greater risk of loss and damage in this scenario than in the movement of material into theatre
Secure storage of material in-theatre		X	The requirement to store material in-theatre would be higher in a UN scenario
Refrigeration of perishables in-transit, into/out of theatre	X		A limited number of DND sea owned containers are necessary in order to ensure that essential operational requirements can be met in a timely manner
Refrigeration of perishables in-theatre		X	A limited number of DND owned sea containers are necessary in order to ensure that essential operational requirements for food and medical supplies can be met A large number are not required as local contracts will normally be set up for sustainment
National Sea Container Operational Pool (NSCOP) (For surge Movement of Material)		X	The CF should maintain sufficient sea containers to mount an Infantry Battalion Group - sized force and a Brigade Headquarters
Special Requirements		X	Custom-designed or special purpose containers should be purchased and controlled by the Units for which they are required
Command Posts (CPs), ammunition bunkers etc		X	When sea containers are to be used in this manner it must be declared immediately so that aged or unserviceable containers can be identified and used. If the situation is so dire as to necessitate use of leased (or serviceable owned) sea containers this must be openly declared so that the leased containers can be purchased from the contractor immediately rather than paying for it many times over.

GLOSSARY OF TERMS AND DEFINITIONS

For the purpose of B-GJ-005-404/FP-000, and the supporting modal manuals, the following terms, definitions and abbreviations apply:

A

ABCA - AMERICA-BRITAIN-CANADA-AUSTRALIA nations.

Aboard - On or within the ship or vessel.

ACE - Allied Command Europe.

ACHE - Aircraft Handling Equipment.

ADAMS - Allied Deployment And Movement System.

ADM - Assistant Deputy Minister. Sometimes used as the abbreviation for "Administration".

Administrative Loading - A loading system which gives primary consideration to achieving maximum utilization of troops and cargo space without regard to tactical considerations. Equipment and supplies must be unloaded and sorted before they can be used. (AAP-6)

Administrative load (Air) - The arrangement of loads to make maximum utilization of aircraft capability.

Administrative movement - A movement in which troops (personnel) and vehicles are arranged to expedite their movement and conserve time and energy when no enemy interference, except by air, is anticipated. (AAP-6)

"A" End of a Rail Car - The opposite end to that on which the hand brake-wheel is located.

Aeromedical evacuation (AeroMed) - The movement of patients to and between medical treatment facilities by air transportation. (AAP-6)

Aft - Towards the stern or rear of the ship/vessel, or compartment within the ship/vessel, between the centre and after part of the ship/vessel or compartment.

Airborne Force Commander (AB Force Comd) - An officer in command of airborne forces which are to be airdropped or air landed in an area of operations.

Airborne operation - An operation involving the movement of combat forces and their logistic support into an objective by air. (AAP-6)

Air Component Commander - An air officer appointed to exercise operational command of the air component forces assigned to a Task Force to accomplish the mission/tasks assigned. He is responsible to the Task Force Comd.

Aircraft commander - The aircrew member designated by competent authority as being in command of an aircraft and is responsible for its safe operation and accomplishment of the assigned mission. Also called "aircraft captain". (AAP-6)

Aircraft Loading Table (ALT) - A data sheet jointly prepared by the embarking unit/formation (UEO/TFMO) and the Air Mov Sqn/MAMS. It contains details of the load that is planned for each aircraft and is based in part, on the information contained in the UMST or TFMT.

Aircraft marshaller - A person trained to direct, by visual or other means, the movement of aircraft on the ground, into and out of landing, parking or hovering points. *Also called "aircraft guide". (AAP-6)*

Airflow plan - In an airlift/air transport operation, a chart showing planned routings, departure intervals and itineraries.

Airhead -

1. A designated area in a hostile or threatened territory which, when seized and held, ensures the continuous air landing of troops and materiel and provides the manoeuvre space necessary for projected operations. Normally it is the area seized in the assault of an airborne operation.
2. A designated location in an area of operations used as a base for supply and evacuation by air.

(AAP-6)

Airlift - The strategic movement of passengers and cargo by air to theatres, and between, theatres of operation by air transport.

Airlift Commander (Airlift Comd) - An air officer appointed by the Commander 1 CAD for the planning and execution of an airlift/air transport operation/ exercise, and having operational control of all 1 CAD resources assigned. He is responsible to the Commander 1 CAD or to the Air Component Commander of a Task Force (TF) as appropriate.

Airlift Control Centre (ALCC) - An operations centre where the detailed planning, co-ordination and tasking for airlift/air transport operations are accomplished. This is the focal point for communications and the source of control and direction for the airlift/air transport forces. The Task Force (TF) ALCC is the Airlift Comd's operation centre. Within a theatre, the TF ALCC will normally be integrated into the Air Component Comd's TACC.

Airlift Control Element (ALCE) Commander - An officer appointed by either 1 CAD HQ or an Airlift Comd to command an ALCE for a defined operation/exercise. The ALCE Comd is responsible to the Airlift Comd.

Air Movement - Air transport of units, personnel, supplies, equipment and materiel. (AAP-6)

Air Movement Officer - An officer trained for duties in air movement/traffic sections. (AAP-6)

Air Movement Squadron (Air Mov Sqn) - A 1 CAD squadron established to meet the demand for air movement support at those terminals where there is a regular and recurring need for processing air transport.

Airport of Disembarkation (APOD) - The airport at which the aircraft carrying personnel and/or materiel are off-loaded. AAP-15. (The arrival airfield).

Airport of Embarkation (APOE) - The airport at which final preparations for embarkation are completed and through which assigned troops, materiel, and vehicle loads for aircraft are called forward and loaded onto the strategic airlift. AAP-15. (The departure airfield).

Air Standardization Co-ordinating Committee (ASCC) Air Standard - An Air Standardization Co-ordinating Committee (ASCC) Air Standard is an agreed operational or airlift/air transport support procedure among the United States, Britain, Canada, Australia and New Zealand (ABCA) nations.

Air Transport (AT) -

1. The carriage of personnel and/or cargo by air.
2. To transport passengers and cargo by use of aircraft, at the tactical level.

Air transportable - Personnel and materiel capable of being transported by air.

Air Transport Liaison Officer (ATLO) - An officer, Warrant Officer or Sr NCO appointed by an Environmental Chief of Staff (ECS), Formation or Component Commander to assist the TFMO (see below). He/she is employed at an airfield during the movement phase of an Air Transport Operation. (The ATLO's responsibilities are at Chapter 2, Annex A, Appendix 2).

ALD - Available-to-Load Date.

Alongside - By the side of the berth/quay etc.

AMCC - Allied Movement Co-ordination Centre.

American Association of Railroads (AAR) - American Association of Railroads - the American organization that sets out interchange rules and the rules governing the loading of open top rail cars in Canada and the US.

Amidships - In the vicinity of a ship/vessel's centre on the longitudinal or lateral axis.

AMS - Air Movements Section.

AMTS - Allied Movement and Transportation System.

Anchorage - An area in a harbour or stream where ships/vessels anchor, or may anchor.

AP - Ammunition Point.

Apron

1. A defined area on an aerodrome, intended for parking, loading, unloading and/or servicing of aircraft. (AAP-6)
2. The term "apron" has also been used related to movement by sea to mean The portion of a wharf lying between the waterfront edge and the transit shed.

ASCC - Air Standardisation Co-ordinating Committee.

ASG - Area Support Group (Land Forces). A formation providing support services consisting of a HQ (ASG HQ) and subordinate CFBs/ASUs/GS Bns.

Assembly Area. An area in which a command is assembled preparatory to further action.

1. In a supply installation, the gross area used for collection and combining components into complete units, kits or assemblies (AAP-6).

2. An area where vehicles are re-fuelled, minor repairs are completed, final briefings and training completed, vehicles and trailers are loaded with combat supplies and vehicles/equipment are formed up in unit packets and directed to their Final Destination. (CF Specific).

Assembly Base - The base, designated by the parent Command, at which all personnel, materiel and vehicles are initially assembled for training and administration prior to deployment.

Astern - In the direction of the stern, the opposite of ahead.

ASU - Area Support Unit (Land Forces). Subordinate to ASG HQ.

Athwart - Across, from side to side.

Average speed - The average distance travelled per hour, calculated over the whole journey, excluding specifically ordered halts. (AAP-6)

Austere airfield - A landing area (i.e., dirt, matting, sod, ice, snow) capable of receiving aircraft, and having a source of potable water.

Axial route - A route running through the rear area and into the forward area (AAP-6) (previously described as front routes and rear routes).

B

Bale Cubic Capacity (Sea movement) - The space available for loading cargo, measured in cubic feet or metres, to the inside of the cargo battens, on the frames, and to the underside of the deck beams. In a general cargo of mixed commodities, the bale cubic applies. The stowage of the mixed cargo come in contact with the cargo battens and as a general rule does not extend to the skin of the ship. The bale cubic may be used as a measurement of a ship's/vessel's capacity for general cargo.

Barge - A craft into which cargo is transferred from a ship or quay, for onward conveyance on inland waterways. (AMovP-3)

Basic Load - the quantity of supplies to be on hand within, and which can be moved by, a unit or formation. It is expressed according to the wartime organization to the unit or formation and maintained at the prescribed levels. (AAP-6)

Battens or "Sheathing" (Sea movement) - Substantial wooden planking, fitted at the sides of a cargo compartment, to keep cargo from contact with the frames and shell plating of a ship/vessel.

Beam - The greatest width of a ship/vessel (see Hatch Coverings below).

"B" End of a Rail Car - The end on which the hand brake-wheel is located.

Berth - A position for a ship to be loaded or discharged in a port or maritime facility. (AMovP-3)

Bill of Lading - A document which evidences a contract of the carriage by sea and the taking over or loading of the goods by the carrier and by which the carrier undertakes to deliver the goods against surrender of the document. A provision in the document that the goods are to be delivered to the order of a named person, or the order, or to bearer constitutes such an undertaking. (AMovP-3)

Blackout line - A designated line forward of which road vehicles are required to use blackout lights at night.

Blocking and Bracing - The placing of blocks or timbers, against the ends or sides of a vehicle, or heavy equipment, to prevent horizontal movement. Bracing strengthens the blocked item, horizontally tying the blocking to an immovable item. Also the material used in such loading such as blocks, wood strips, steel straps, etc.

Block of rail cars - A group of five or more rail cars; a block of five is the smallest number of rail cars that can be moved in a controlled move.

Block timing - The fixed timings between which a road or portion of a road is allotted to a particular serial, formation, or unit. See also "movement credit".

Block train - Same as special train (see below).

Board - To go upon a ship/ vessel's deck.

Boom - Derrick (or crane).

Bosun (or Boatswain) - The senior deckhand who is responsible to the Captain, through the chief officer, for the ship's/vessel's gear.

Bow - The front of a ship/vessel.

BLP - Back-Loading Point.

Brake wheel clearance (rail) - The necessary clearance of the rail brake wheel to permit safe operation of handbrakes by trainmen.

Break-Bulk - A general cargo ship capable of carrying cargo that isn't containerized , or in bulk (like grain or coal) conventionally stevedored and stowed.

Bridge - A raised transverse area on a ship/vessel from where it is "conned" or operated by the ship/vessel's officer of the watch.

Bridge-plate - A device for bridging the space between flat rail cars permitting vehicles to be driven from one flat rail car to the next during loading/unloading operations using the "circus method" (see below).

Broken Stowage - In a vessel represents the lost space in the hold of the contour of the ship and the shape of the cargo containers. A typical number for a vessel with general cargo is 10 to 15 percent; for a complete load of vehicles in a vessel this figure represents 30 to 40 percent. (AMovP-3).

Bulkhead - A partition that divides the interior of a ship or vessel into compartments. They may be transverse (from side to side) or longitudinal (running fore and aft). They can also be of steel or wooden construction, and either temporary or permanent.

Bunker

- a. compartment of a ship/vessel used for carrying fuel;
- b. the ship/ vessel's fuel.

"Bunkering" - Taking on fuel for the ship/ vessel's operation.

C

C³ - Command, Control and Communications.

CNR (or CN) – Canadian National Railways.

CPR (or CP) – Canadian Pacific Railways.

Capacity – Generally the nominal rating that gives the maximum load by weigh, volume or total number of assets that can be carried by a particular transportation asset e.g. "X" type of truck has a capacity of "Y" pallets, or the amount of transportation assets that can be borne by a system e.g. the air flow has a capacity of "Z" aircraft.

Capacity of a Road – In general, capacity of a road or facility is the maximum hourly rate at which vehicles can reasonably be expected to traverse a point or uniform section of a lane or road way during a given time period under prevailing road, traffic and control conditions. (AMovP-3)

CAPC - Civil Aviation Planning Committee (NATO).

Cargo

1. Commodities and supplies in transit. (AAP-6)
2. Cargo may include vehicles, freight (including dangerous goods), mail and baggage.

Cargo Compartments

1. **container cell** - vertical stacks and guides on board a ship/ vessel for stowing sea containers.
2. **deep tank** - a below-the-hold tank, specifically watertight compartments which may be used for salt water ballast, or bunker.
3. **hatchway/hatch** - The opening in the deck through which cargo is loaded or discharged. Frequently the words "hatch" and "hold" are used interchangeably, but strictly speaking the hatchway or hatch is only the opening in the deck.
4. **hold** - The cargo compartment under the hatch.
5. **naming numbering** - Cargo compartments, horizontally, are numbered from bow to stern; vertically, they are named hold, tween deck, upper tween, etc, starting from the keel.
6. **platform or "orlop" decks** - A partial deck, between decks, comparable to a mezzanine in a building, not continuous throughout the ship/vessel.
7. **tween deck** - A deck between the weather deck and the hold, the upper compartment being the "upper tween deck", the next compartment down the "lower tween deck". Where only two compartments are involved, they are the tween deck and the hold.
8. **weather, or upper, deck** - Any deck or portion of a deck exposed to the elements.
9. **wing** - The pan of a cargo compartment near the sides of a ship/vessel, usually outboard from the square of the hatch.

Cargo Dead-weight Tonnage – The total cargo and passenger capacity of a ship expressed in tons/tonnes. (AMovP-3)

Carrier – The party undertaking transport of goods from one point to another. (AMovP-3)

CCA - Can Consignor Accept.

CECC - Civil Emergency Crisis Cell.

Centreline - Imaginary fore-and-aft line extending from the bow to the stern through the centre of the ship /vessel.

Chalk - A designated aircraft load, whether comprised of personnel, materiel or a combination of both.

Chalk Commander - An Officer, WO or NCO designated in control of the personnel assigned to a specific aircraft. He is not necessarily the senior passenger. (The Chalk Comd's responsibilities are at B-BJ-005-404/FP-040 Mov Sp Air Chap 2, Annex A, Appx 11).

Chalk Number - An identification number/serial given to a chalk.

Checking - The counting and checking of cargo against appropriate documents for the account of cargo on a ship/vessel.

Chock block (often simply "chock") - Metal or wooden device secured against the wheels or track of a vehicle to prevent it from moving forward or backwards. Also on a ship the deck fitting through which mooring lines are passed.

"Circus method" - Procedures used in loading vehicles on a train of flat rail cars whereby the vehicles are driven up a ramp to the end rail car and then driven forward over "bridge-plates" (see above) to the first and successive rail cars of the train. This method can only be used on a straight section of track.

Clear - The time that the tail of a column passes or is scheduled to pass a specified critical point.

Closed wagons - Alternative term for type of rail car similar to the North American "box" car.

Coomings - Side of hatch projecting above a ship's deck around perimeter of the hatch.

Column - A group of vehicles, moving under a single column commander, over the same route, at the same time in the same direction. (AMovP-3)

Combat Ready Loading - System of loading in which all, or parts, of a unit, or Task Force, are tasked organized/grouped on either a single ship/number of ships, with essential equipment and supplies, so that the grouping can support the tactical plan immediately after debarking. B-GJ-005-404/FP-010, Mov Sp Sea, Chap 4.

Command for Movement - The authority to direct, co-ordinate, and control the movement of forces. Logistics responsibility is included only throughout the movement phase.

Compatibility. Capability of two or more items or components of equipment or material to exist or function in the same system or environment without mutual interference. (AAP-6)

Corner Castings - Hardware located on the top and bottom of the sea container corner posts used for handling and securing a sea container.

Consignee - Person to whom goods are dispatched.

Consignor - Person from whom goods are dispatched.

Consolidate - Combine into one whole.

Consumer Logistics - Consumer logistics is the materiel segment of life-cycle management generally associated with the reception, storage, transportation, maintenance and disposal of materiel.

Container - Many types of boxes, sacks, bottles, cans and drums can be described as containers. They may or may not have construction, fittings, and fastenings able to withstand, without permanent distortion, all the stresses that may be applied in normal service use of continuous transportation. The term is often applied to what in this manual has been described as a "sea container" for which a specific definition has been incorporated below.

Container Equivalents - The terms Forty foot Equivalent Unit (FEU) and Twenty foot Equivalent Unit (TEU) are used as a conversion of the volume of a given commodity into sea container equivalents. These are based on the amount of sea containerized cargo, the cargo densities, and the weight or measurement capacities of sea containers. Twenty foot equivalent (TEU) is the internationally recognized standard of comparison.

Containerized Delivery System (CDS) - Although CDS is the normal abbreviation for Chief of the Defence Staff in parachute operations it is used as the abbreviation for Containerized Delivery System (CDS)

Contingency load (formerly known as combat load) - The term "combat load" may still be heard in some forums but should be replaced by contingency load and is:

1. The total warlike stores carried by an aircraft.
2. The organization of loads within an aircraft to enable disembarkation directly into combat.

Controlled/restricted train move - A controlled/restricted train move means that the rail cars are not to be subjected to impacts of greater than 4 mph, and that no "humping" (see below) with an impact greater than this is allowed. All CF moves of units/formations are to be "controlled", with a "no humping" restriction unless stated otherwise (except for moves of less than 5 rail cars). Within Canada all moves are Controlled/restricted however, to avoid confusion and damage, controlled/restricted train moves must be formally requested by the CF and approved by the railway. Some very heavy vehicles, like main battle tanks, can only be moved by a controlled move with a no humping restriction.

Controlled Route - A route, the use of which is subject to traffic or movement restrictions, which may be supervised. (AAP-6)

Convoy

1. A number of merchant ships or naval auxiliaries, or both, usually escorted by warships and/or aircraft, or a single merchant ship or naval auxiliary under surface escort, assembled and organized for the purpose of passage together.
2. A group of vehicles organized for the purpose of control and orderly movement with or without escort protection.

(AAP-6)

Convoy Escort

1. Ship(s) or aircraft(s) in company with a convoy and responsible for its protection.
2. An escort to protect a convoy of vehicles from being scattered, destroyed or captured.

(AAP-6)

Crane (or Derrick) - Machine for hoisting and moving goods within a limited radius.

Critical point - A selected point normally along a route used for reference in giving instructions. Examples are start points (SP) and Release Points (Rel P), and other points where interference with movement may occur or where timings are critical.

Cross loading -

1. Generally to move a load from one form of transport to another i.e. to cross load from one CC130 to another, or from a CC150 to a truck.
2. A technique used in para operations and exercises which disperses the personnel of every tactical organization among the various aircraft involved in a Para/air landed deployment. Furthermore, within each aircraft, the dispersed personnel will be positioned in an equal seating sequence thus guaranteeing the regrouping of the tactical organization in the desired Drop Zone/Landing Zone (DZ/LZ) area. This technique also applies to critical equipment loads.

CSG - Canadian Support Group.

D

Dangerous Goods - Cargo which, because of its dangerous properties, is subject to special regulations for its transportation.

Dead-weight tonnage - See **tonnage**.

Deep tank - See **cargo compartments**.

Deck - Normally relates to a "floor in a ship but also the wooden, or metal, floor of a flat rail car.

Demurrage - The penalty charge levied for holding a rail car, or sea container, beyond a specified period see also A-LM-158-004/AG-001 Chap 9 Sect 5 Art 937.

Density - the number of vehicles occupying a given length of lane or roadway averaged over time. Usually expressed as vehicles per kilometre or mile or vehicles per kilometre or mile per lane. (AMovP-3)

Departure Airfield Support Services Officer (DASSO) - An officer appointed by the supporting base at a departure airfield (APOE). Although titled "Departure" the DASSO is responsible for co-ordinating all support services provided by the base during an airlift departure or arrival. The DASSO's responsibilities are described at B-BJ-005-404/FP-040 Mov Sp Air Chap 2, Annex A, Appx 5.

Deployment

1. The movement of forces within areas of operations.
2. The positioning of forces into a formation for battle.
3. The relocation of forces to desired areas of operations.

(AAP-6)

NOTE: within the CF Operational Planning Process (OPP), deployment represents the third phase of an operation. In this context, the Deployment Phase of an operation is said to commence with the departure of the first vehicle/aircraft/vessel assigned to lift the main body of the unit/formation being deployed, and ends with the arrival of the last vehicle/aircraft/vessel

assigned to lift the main body of the unit/formation being deployed at the designated Ports of Disembarkation.

Depositioning - The final flights in an airlift/air transport operation where 1 CAD resources are collected and returned to home bases.

Despatch Route - In road traffic, a roadway over which full control, both as to priorities of use and the regulation of movement of traffic in time and space is exercised. Movement credit is required for its use, even by a single vehicle. (AAP-6)

DLBM - The Directorate of Logistic Business Management within NDHQ. DLBM TM is the section dealing with Transportation Management.

Displacement ton - See **tonnage**.

Distribution Point (DP) - A location at which supplies and/or ammunition, obtained from supporting supply points by a division or other unit, are broken down for distribution to subordinate units. Distribution Points usually carry no stocks; items drawn are issued completely as soon as possible.

Dockage - The charge levied against a ship/vessel for the use of the berthing space. Often called berthing fees.

Dock receipt - Receipt issued by ocean carrier or its agent for merchandise delivered at its wharf or warehouse awaiting shipment.

Drag - See **trim**.

Draft (or Draught) - See **trim**.

Drop Zone (DZ) - A specified area (determined by four co-ordinates) upon which parachute troops, equipment, or supplies are dropped from aircraft.

Drop Zone/Landing Zone Controller (DZ/LZ Controller) - A qualified individual commanding the DZ/LZ Con Team.

Drop Zone/Landing Zone Control Team (DZ/LZ Con Tm) - A team positioned on a DZ/LZ whose duty is to establish navigation aids, ground signals and communications for/with incoming aircraft. (The requirements for a DZ Con Team are at B-BJ-005-404/FP-040 Mov Sp Air Chap 6, Annex C).

Drop Zone Safety Officer (DZ Safety Officer) - A qualified Officer/Warrant Officer or Sr NCO responsible for the decisions affecting the safe conduct of a Para operation. (This individual could be the DZ Controller). (The DZ Safety Offr's responsibilities are at B-BJ-005-404/FP-040 Mov Sp Air Chap 7, Annex A).

Due - The time at which the head of a road column is scheduled to arrive at a specified critical point, e.g., the start point.

Dunnage - Any material such as boards, blocks or metal bracing that is used in storage or transit to support and secure supplies to protect them from damage, or for convenience in handling. The action of using "dunnage" is often colloquially referred to as "dunnaging".

E

Earliest Arrival Date (EAD) - The earliest date at which transport carrying cargo/personnel can arrive at a destination.

Equipment Configuration Codes (ECC) - Unique codes used to designate CF equipment especially vehicles.

Earliest Departure Date (EDD) - The earliest date at which transport carrying cargo/personnel can depart from its originating location.

Employment - The time between the deployment and redeployment during which the transported user unit(s) complete(s) the assigned mission.

Exchange Point (XP) - A point at which cargo is transferred from one vehicle to another of the same transport mode.

Execution hour (E-HOUR) - The take-off time for the first aircraft of a deployment.

Extra time allowance - Within a road column moving under one identification serial number, an extra time allowance of one minute per 25 vehicles, or part thereof is always allotted above the calculated pass time.

1. if, a column exceeds 600 vehicles, the extra time allowance allotted will be two minutes per 25 vehicles.
2. between columns having different serial numbers, no standard gaps are prescribed; these gaps will be allotted by the staff responsible for planning the movement.

F

Filler cargo - During a pre-planned movement, authorised cargo positioned at a location to be fitted into transportation assets as space permits. Filler cargo in itself is usually assigned shipping priorities.

Final Destination - The definition of the "Final Destination" (FD) is "an assembly area within the area of operations (AO) where a unit, formation or capability is required to be ready for mission execution in accordance with the Commander's CONOPS". In NATO operations it is normally at the FD that national, or lead nation (LN) responsibility for deployment and/or sustainment movement terminates and Transfer of Authority (TOA) to a NATO Commander occurs.

Flat car - A freight rail car having the floor laid over sills, and without any sides or body above.

Flow - The number of vehicles that pass within a given point within a given period of time, expressed in vehicles per hour (vph).

Fore and Aft - Along the length of a ship/vessel. From stem to stern.

Fork Pockets - Openings in the bottom supports of sea containers, and other equipment, for entry of the forks of a fork lift truck.

Forward (fore) - Towards the bow or forward end of the ship/vessel, or compartment of a ship/vessel, or between the centre and forward part of the ship/vessel or compartment.

Forward Staging Base (FSB) - A base located in or near a theatre of operations, the primary mission of which is to support military operations.

Freeboard - Height of ship/vessel's hull above the water line.

Freight Container - An article of transport equipment that is of a permanent character and accordingly strong enough to be suitable for repeated use; specially designed to facilitate the transport of goods, by one or modes of transport, without intermediate reloading and designed to be secured and/or readily handled, having fittings for these purposes. (IMDG Code)

Freight - The actual goods carried.

Full and Down - Condition of a ship/vessel when full of freight and down to her maximum legal draught (or draft) marks.

G

Galley - Kitchen in a ship.

Gangway - Ladder or stairway from quay to ship/vessel.

Gantry - Any structure which spans or hangs over.

Gauge - Refers to the predetermined maximum size to which a load must comply.

Gear/Geared - Refers to the ship's cranes (derricks) and rigging used to lift cargo. A "geared" ship is one that is equipped with cargo cranes

General Cargo - Cargo which is susceptible to be loaded in general, non-specialized storage areas, e.g., boxes, barrels, bales, crates, packages, bundles and pallets. Is the type of cargo transported in liner shipping. (AMovP-3)

Gondola - A freight rail car with sides and ends but without a top covering. May be equipped with high or low sides, drop or fixed ends, solid or drop bottoms and is used for shipment of any commodity not requiring protection from the weather.

Gross tonnage - See **tonnage**.

Gross Vehicle Weight (GVW) - Gross Vehicle Weight (GVW) is the maximum weight of a vehicle and its load (also called the laden weight).

GS Bn - General Support Battalion.

H

Hand brake-wheel - The wheel located at one end of a rail car to operate the handbrake, which holds the rail car on a siding or slows the rail car down in certain yard and road operations.

Harbour - See **port**.

Hatch/hatchway - See **cargo compartments**.

Hatch coverings

1. **beam (hatch)** - heavy steel beams set in sockets on the inside of the coamings to support the hatch boards;
2. **boards (hatch)** - the wooden planks which fit into the beams and coamings to cover the hatch;
3. **Mege or MacGregor hatch** - a folding metal hatch cover that is waterproof. Made up of two or more sections per hatch, they are opened by upward pressure against wheels at the corner and raised by the cargo runners. The sections are hinged at each end of the hatch and along a transverse seam joining the sections. When the hatch is opened, the sections stand upright at the end of the hatch and are secured in this position with a chain;
4. **pontoons** - hollow, oblong structures of mild steel that look like shallow boxes and are strong enough to hold deck cargo and withstand the force of the sea. Used in lieu of hatch beams and boards; and
5. **tarpaulins** - as neither hatch boards nor pontoons are watertight, they must be covered with tarpaulins and secured with battens (a bar of steel or wood) and hatch wedges (small wedges of steel or wood) driven between cleats and battens.

Hatch List - A list showing the various commodities and quantity of cargo stowed in the compartment under one particular hatch.

Heads - Washrooms/Toilets on a ship.

Heavy Lift - Articles too heavy to be lifted by a ship's tackle/gear.

Hold - See **cargo compartment**.

"Hook and haul" operation - A rail move where the carrier picks up a train at the terminal of origin and takes it to the destination terminal with no en route stops for "switching". In such operations the train only stops to change crew, etc.

Host Nation (HN) - A nation which receives the forces and/or supplies of allied nations to be located on, or to operate in, or to transit through its territory. (AAP-6).

Host Nation Support (HNS) - Civil or military assistance rendered in peace and war by a host nation to allied forces which are located on, or in transit through, the host nation's territory. The basis of such assistance is formulated from commitments arising from bilateral or multilateral agreements concluded between the host nation and the nation(s) having forces operating on the host nation's territory. (AAP-6).

"Humping" - Most modern Canadian rail yards have a hump built into the track at one end of the yard. Trains are "built/assembled/configured" by pushing individual rail cars over this hump and letting them roll free. The rail car rolls down the yard with a computer guiding it into the appropriate train by opening and closing switches. The rail car rolls into the appropriate train with an impact. Within Canada this impact has been restricted to 4 mph or less however in other countries it can be up to 8 mph. The tie-down standard for a controlled move is 4 mph, therefore rail cars that are part of a controlled/restricted move cannot be "humped" where the impact will be greater than 4 mph, but must be "flat switched".

I

Idler car - An additional rail car placed between a rail car with an overhanging load and the next rail car.

IMS - International Military Staff.

Inboard - Away from the side of a ship/vessel to its centre line.

Infiltration - The feeding of single or small groups of road vehicles into a movement along a route, at extended or irregular intervals, or into or across axial routes. They are identified by even numbers and shown on overlays by broken lines.

Infrastructure - A term generally applicable for all fixed and permanent installations, fabrications, or facilities for the support and control of military forces. (AAP-6)

Intermodal - Ability to change from rail to truck to ship, and sometimes air transport in any order. Often applied to the use of sea containers (see below).

International Civil Aviation Organization (ICAO) - A group which sets the standards for international transport of dangerous goods by air. (AMovP-3)

International Maritime Organization (IMO) - A group which sets the standards for international transport of dangerous goods by sea. (AMovP-3)

International Maritime Dangerous Goods Code (IMDG) - Regulatory documents which implement the requirements of the IMO. (AMovP-3)

International Standards Organization (ISO) - An international organization, that sets and defines standards. Most often seen in this manual in the context of "sea containers" (see below).

International Standards Organisation (ISO) Container - Often referred to within CF as "TEUs" (Twenty Foot Equivalent Units), Sea Containers, "Seacans" or simply SCs. The term Sea Container is to be adopted within CF and the definition is below.

IWT - Inland Water Transport.

J/K

Jetty - Structure at which ships/vessels may be berthed, which projects from shore or quay into stream or harbour.

Joint Force - A force composed of elements of two or more Services of a single country operating under a single commander.

Joint Force Commander - A commander authorised to exercise operational command or operational control over a joint force.

Jumbo - An onboard crane/derrick or hoisting system, with a capacity much greater than the normal ship's tackle/gear, used for heavy lift.

Jumpmaster (JM) - The assigned qualified individual who controls parachutists from the time they enter the aircraft until they exit.

L

Land Component Commander (LCC) - Sometimes referred to as Land Force Commander

Land Component Commander (LCC) is essentially a NATO term used to define an officer appointed to exercise operational command of the Land Component forces assigned to a Task Force (TF). He is responsible to the (Joint) Task Force Comd.

Landing Zone (LZ) - A specified zone within an objective area used for the landing of aircraft.

Lane Metres (LM) - The vehicle decks of Roll on Roll off (RORO) ships are marked into lanes that are generally 2.5m wide. The term "Lane Metres" (sometimes also referred to as linear metres or LIMS) is used to indicate the vehicle carrying capacity of a vessel. A Lane Metre is the length of the vehicle/equipment/container in linear metres rounded up to the nearest centimetre with a width not exceeding 2.5m. LM are calculated as length multiplied by width, divided by 2.5 metres. Square Metres (Length x Width) are used by some other forces whilst the US uses Square Feet (Sq Ft length x width). When working with other forces, or operators, this must be taken into consideration.

Lashing - See **Tie down**.

Lateral restraint - Lateral restraints are devices used to prevent vehicles from sliding sideways on or in a transport asset e.g. a rail car, truck, ship or aircraft.

Lateral Route - A route generally parallel to the forward edge of the battle area, which crosses, or feeds into, axial routes. (AAP-6)

Latest Arrival Date (LAD) - The latest date at which transported cargo/personnel can arrive at the destination.

Lead Nation (LN) - A nation accepting the responsibility for planning and controlling the deployment, transportation for sustainment (resupply) and redeployment. In addition can be responsible for obtaining transportation resources for multinational headquarters groups and/or units with a high degree of multinationality; or accepting the lead in performing Host Nation tasks and responsibilities; or accepting responsibility for performing specific movement and transportation tasks. (MC 336/1).

Lift On- Lift-Off (sometimes Load On- Load Off), LO/LO, LO-LO or LOLO.

The abbreviation LOLO is used throughout this manual. LOLO is a method of loading/unloading a ship by using cranes/derricks that are either integral, or shore based. When requesting, or working with, a LOLO always clarify whether or not it is self contained i.e. it has its own integral "gear" and the lifting capacity of that gear.

Lighter - A barge or other small craft used in transferring cargo from ship/ vessel to shore or vice-versa. The term "lighterage" is commonly applied to the plural or collective of lighters, although it is not strictly correct.

Line Function (of movement) - Executive control of movement.

Lines of Communications (LOC/L of C) - All the land, water and air routes that connect an operating military force with one or more bases of operations, and along which supplies and reinforcements move. (AAP-6)

Load limit - Normally the maximum load (in pounds) a flat rail car can carry, as shown after the abbreviation "LD LMT" stencilled on the rail car.

Loadlines - Legal limits beyond which ship/vessel must not be loaded.

Locking Pads - Devices for securing containers to a ship/vessel's deck, truck chassis, rail car, etc.

Logistics - The science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, the aspects of military operations which deal with;

1. Design and development, acquisition, storage, transport, distribution, maintenance, evacuation, and disposition of materiel;
2. Transport of personnel;
3. Acquisition or construction, maintenance, operation, and disposition of facilities;
4. Acquisition or furnishing of services; and
5. Medical and health service support. (AAP-6).

Logistics Over The Shore (LOTS) - Transportation of logistic resources from marine vessels over a shoreline with no ready-made facilities.

Long Ton - A unit of weight, 2,240 pounds or the equivalent to 1,016 kilograms.

Low Altitude Parachute Extraction (LAPES) (No longer practiced by CF in peace time) - Refers to an obsolete procedure for the dispatch of specialized heavy platforms, which were extracted from the CC 130 Hercules as it flew over an extraction zone.

M

Main Supply Route (MSR) - The route or routes designated within an area of operations upon which the bulk of traffic flows in support of military operations. (AAP-6)

Major Port - Any port with two or more berths and facilities and equipment capable of discharging 100,000 tons of cargo per month from ocean-going ships. Such ports will be designated as probable nuclear targets. See also **port**. (AAP-6)

Manifest - Detailed list of cargo being carried in a ship/vessel, prepared at port of shipment, showing marks, numbers, and description of packages, and names of consignees.

Marshalling Area - In movement operations an area on/or near to the port of embarkation (POE) where vehicles and equipment are delivered, and from where they are called forward by Mov Con Dets or OIC MAMS for weighing and loading.

Materiel - Equipment or supplies used by an organization or institution, or required by some work or enterprise. All items (including ships, tanks, self propelled weapons, aircraft etc and related spares, repair parts, software and support equipment but excluding real property, installations and utilities) necessary to equip, operate, maintain and support defence-related activities, without distinction as to their application for administrative or combat purposes. (DPG 2001)

Materiel Handling Equipment (MHE) - The collective description for various cranes, fork lift trucks and the like used for loading and unloading materiel.

Maximum permissible load (MPL) - The total load limitation established for each individual flight, e.g., passengers, baggage, equipment, cargo and mail. For exercises/operations the MPL is usually pre-established for planning purposes.

Mean Draft (or draught) - Average of the stern draft, or draught, and the bow draft, or draught, expressed in feet and inches.

Measurement Ton - See **tonnage**.

Minor Port - A port having facilities for the discharge of cargo from coasters or lighters only. (AAP-6)

MNDDP - Multi National Detailed Deployment Plan (NATO).

Mobile Air Movements Section (MAMS) - A team of traffic technicians (Tfc Techs) specially trained for operational air movement and deployment in support of strategic airlift and tactical air transport operations. (MAMS' responsibilities are at B-BJ-005-404/FP-040 Mov Sp Air Chap 2, Annex A, Appx 7 with OIC MAMS at Appx 6).

Mobility - A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfil their primary mission. (AAP - 6).

Mode - Way, manner, in which a thing is done e.g. Mode of Transport below.

Mode of Transport (MOT) - There are commonly identified 7 modes of transport: sea, rail, road, air, inland waterway, animals and pipeline. Their characteristics are expanded in Chapter 1 Section 6 of this manual. NATO and CF have adopted the acronym MOT for military usage as "mode of transportation", but take care when using it when dealing with the civil sector where MOT is commonly used as Minister or Ministry of Transport).

Monitor - Maintain regular surveillance (over).

Mounting Base - The base designated, by J4 Mov for deployment or the Task Force for redeployment, to accommodate all personnel, materiel and vehicles in transit from the Assembly Base to the ports of embarkation (POE). Here, final movement preparations, prior to movement to the POEs and subsequent embarkation of the unit(s) onto aircraft and ships, are directed. Functions may in some cases be carried out at an assembly base or POE.

Movement - Movement is the activity involved in the change in location of personnel, equipment or stocks as part of a military operation. Movement requires the supporting capabilities of mobility, transportation, infrastructure, movement control and logistics/administrative support functions. (MC 319/1)

Movement Control (Mov Con) - The planning, routing, scheduling and control of personnel and cargo (materiel) movements over lines of communications (MC 319/1 & AAP-6). It also applies to the organization responsible for these functions.

Movement Co-ordination - The staff function responsible for centralised control of movement at the highest appropriate level of command, including designation and co-ordination of transport agencies.

Movement Co-ordination Centre (MCC) - A movement operations centre established by, or at, a Headquarters through which movement is co-ordinated.

Movement credit - The allocation granted to one or more vehicles in order to move over a controlled route in a fixed time according to movement instructions. (AAP-6) See also **block timing**.

Movement Number

Number, allocated to a movement by the movement control staff responsible for the issue of a movement credit. The movement number should comprise:

1. Two figures indicating the day of the month on which the movement is due to commence;

2. Three or more letters indicating the movement agency issuing the movement credit. The first two letters being the national symbols of the movement agency;
3. Two or three figures indicating the serial number of the movement;
4. One letter to identify the element of the column (optional).

(AMovP-3)

Movements - A generic, colloquial, term often applied to the overall organisation that is involved with the function of movement e.g. the Movements System, or aspects thereof "he's involved in Movements."

Movement serial - One element, or a group of elements, within a series, which is given a numerical or alphabetical designation for convenience in planning, scheduling, or control of movements by land, water, or air.

Movement Staff Table (MST) - The list of all items/personnel to be airlifted/air transported specifying weight, quantity, dimensions, description e.g. UMST (see below)

Movement table - A table giving detailed instructions for a move. Where necessary, it will be qualified by the words "road", "rail", "sea", "air", etc. to signify the type of movement. Normally issued as an annex to a movement order or instruction. (AAP-6)

Multi-modal - In transport operations, a term applied to the movement of passengers and cargo by more than one method of transport. (AAP-6)

N

NATO Stock Number (NSN) - A 13-digit number used to identify an item of supply of a NATO member nation. (AMovP-3)

NAC - North Atlantic Council (highest authority in NATO).

NCWA - NATO Civil Wartime Agency.

NDMCC - National Defence Movement Co-ordination Centre, the Canadian National Movement Co-ordination Centre (NMCC) in accordance with AJP 4.4.

Net Tonnage - See tonnage.

Net Explosive Quantity (NEQ) - .Is the net of explosive quantity that can be contained in an article of ammunition and is associated packaging. (AMovP-3)

NLU - National Level Unit - A national military capability encompassing command and control and support, operating at the strategic/operational levels. An NLU is responsible for providing, or arranging, the national sustainment support to an operation.

NMB - No move before (time).

Non-Self-Sustained - A Ship/Vessel which is not equipped with its own integral handling equipment (cranes/derricks or "gear") for the loading/discharge of cargo. Can also be applied to RORO vessels that do not carry their own ramps and require the use of a shore based ramp.

NTM - Notice to Move (time).

O

Ocean Carrier - Ship/Vessel and/or its owners undertaking to carry cargo for financial consideration.

Open wagons - Alternative term for type of rail car similar to the North American "flat" car.

Operational directive - A directive issued by a formation HQ to initiate planning and preparation for an operation on the part of subordinate commanders and staffs. It will include mission tasks, assign resources and state the time by which recipients are required to act.

Operational Mobility - Operational Mobility is the capability to move forces and their associated logistic support quickly and effectively within regions (intra-regional). It also embraces the capability to concentrate regional forces against the major enemy thrust and to counter-concentrate operational reserves (AJP 4.4).

Operation order (Op O) - A directive, usually formal, issued by a commander to subordinate commander for the purpose of effecting the co-ordinated execution of an operation. (AAP-6) It includes essential elements for all mission phases.

Order of Battle (ORBAT) - The identification, strength, command structure, and disposition of the personnel, units, and equipment of any military force. (AAP-6)

Outboard - Away from the centre line to the sides of a ship/vessel.

Out of Gauge (and Outsize) - Terms given to a load/item that does not come within the normal dimension or weight capacity of a transport system. Each mode of transport (MOT) is likely to have a more specific definition.

1. **Oversize Cargo (Air)** - Oversize cargo is the term applied to any single item that exceeds the useable dimensions of a 463-L pallet :

- (a) length - 108 inches
- (b) width - 88 inches
- (c) height - 96 inches; and
- (d) weight - 8000 lbs.

2. **Outsize Cargo (Air)** - Outsize cargo is that which exceeds 810 inches long by 117 inches wide by 105 inches high in any dimension (equivalent metric dimensions are 2057.4 cm x 297.18 cm x 266.7 cm). This type of cargo exceeds the capabilities of CC130 and C141 aircraft and requires the use of C17/An 124 or equivalent aircraft.

Overstow cargo - Cargo that must be discharged prior to commencing regular unloading operations. Normally reloaded on same ship/vessel prior to departure.

P

Pace-setter - An individual, selected by the column commander, who travels in the lead vehicle or element to regulate the column speed and establish the pace necessary to meet the required movement order. (AAP-6)

Packet - A small group of about four to six road vehicles, each vehicle separated by not less than two metres per three kph of speed or one yard per mph of speed.

Pallet - A flat base for combining stores or carrying a single item to form a unit load for handling, transportation, and storage by materials handling equipment. (AAP-6)

Pallet Bars - Bars attached to slings to be placed under pallets for hoisting.

Palletised loading system (PLS)

Parachute Force Commander (Para Force Comd) - The officer in command of the parachute forces that are to be airdropped in an area of operations.

Parachute Operations - In the absence of a formal definition for "Parachute Operations" (Para Ops), for the purpose of the movement manuals, it is defined as "the practice and procedures for delivery of personnel or equipment/supplies by parachute".

Pass time (PT) - In road transport, the time that elapses between the moment when the leading vehicle of a column passes a given point and the moment when the last vehicle passes the same point. (AAP-6) Previously referred to, as "time passed a point (TPP)"

Pathfinder aircraft - An aircraft with a specially trained crew carrying drop zone/landing zone marking teams, target markers, or navigational aids, which precedes the main force to the drop zone/landing zone or target. (AAP-6)

Pathfinder team - A team dropped, or air landed, at an objective to establish and operate navigational aids for the purpose of guiding aircraft to drop and landing zones.

Payload

1. The sum of the weight of passengers and cargo that an aircraft can carry.
2. The load (expressed in tons of cargo or equipment, gallons of liquid, or number of passengers) which the vehicle is designed to transport under specified conditions of operation, in addition to its unladen weight.

(AAP-6)

PB&Cs - Planning Boards and Committees (collective description for CAPC above, PBEIST & PBOS below - NATO).

PBEIST - Planning Board for European Inland Surface Transport (NATO).

PBOS - Planning Board for Ocean Shipping (NATO).

P-hour - In a Parachute Operation the time for the release of the first airdrop load over the Drop Zone.

Permanent way, rail - Laid railway track.

Pier - A framed structure of timber, steel, or reinforced concrete projecting into the sea at an angle to the coast. May have an enlarged head at which ships/vessels can berth.

Platform Deck - See **cargo compartments**.

POD - Port of Disembarkation. (AAP-6).

POE - Port of Embarkation. (AAP-6).

Point of Impact (PI) - The point on the Drop Zone where the first paratrooper, or airdropped cargo, item should land.

Port

1. The left-hand side of a ship/ vessel (previously larboard) when looking forward. Indicated by a red navigation light at night.
2. An infrastructure suitable for operating, berthing, servicing and maintaining ships and also for storage of cargo. (AMovP-3)

Port Capacity - The estimated capacity of a port or an anchorage to clear cargo in 24 hours usually expressed in tons. (AAP-6)

Positioning - Advance flights during which air transport slip crews and ALCEs are dispatched.

Priority vehicles - Any vehicle which for any reason (special liaison officer, signal vehicles carrying priority dispatches, damage assessment personnel, etc) required priority over all other vehicles. (AMovP-3)

Principle - A principle is a general law which guides action; a fundamental truth as the basis of reasoning.

Pre-positioning (aircraft) - The procedure of positioning aircraft and crew at a location in advance of the execution of the mission.

Q

QSTAG - Quadripartite Standardisation Agreement (relates to ABCA see above).

Quay - A structure providing a horizontal working space, generally supported by a heavy retaining wall, at the edge of the dock or basin, alongside which ships/vessels may berth for the purpose of loading or discharging.

R

Railhead - A point on a railway where loads are transferred between trains and other means of transport. (AAP-6)

Rail Movement Control Detachment Commander (Rail Mov Con Det Comd) - The Rail Movement Control Detachment Commander (Rail Mov Con Det Comd) - is the officer in charge of the movement unit/detachment operating a rail terminal or railhead. In Canada this could be the local base transportation officer or base traffic officer.

Rail terminal - A facility for dispatching, or receiving, passengers or freight by rail. It may include yard tracks, repair facilities, service facilities, accommodation for train crews and a railhead. It may be located at the origin or terminating points of a railway as well as at sites which mark the limits of rail operating sections.

Ramp - An artificial inclined path, road, or track along which personnel and vehicles may pass primarily for the purpose of ascending or changing elevation.

1. **angled bow ramp** - RORO ramp extends on an angle to the centre line on the bow.
2. **side ramp** - RORO ramp extends into or protrudes from openings in ship/vessel's side at right angles to the centre line.
3. **stern/quarter stern ramp** - RORO ramp enters or protrudes from a stern aperture along the centre line, or corner of the stern.

RC - Regional Command - Subordinate HQ to NATO Strategic Command (SC).

RDD - Required Delivery Date, more often Commander's Required Date (CRD).

Redeployment - Commences with the departure from the operating area of the first transportation carrying cargo and personnel and ends with the arrival off the last transportation carrying cargo and personnel at the next authorised location (often home base).

Register - Ship/vessel's document showing its particulars.

Release point (Rel P) - In road movements, a well-defined point on a route at which the elements composing a column return under the authority of their respective commanders, each one of these elements continuing its movement toward its own appropriate destination. (AAP-6)

Reserved route - In road traffic, a specific route allocated exclusively to an authority or formation. (AAP-6)

Restrictions - Limitations imposed on a move e.g. when a rail move is controlled it will have one or more restrictions placed on it by the MCC (see above), e.g. no humping (see above) or flat switching only. Other restrictions may concern security, e.g. a particular rail car must be next to the rail car containing the escort party for security reasons, etc. any restrictions must be negotiated by the headquarters controlling the move, with the carrier.

Rig (Verb) - To prepare a load for airdrop.

RLD - Ready-to-Load Date.

Road space - The length of road allocated to and/or actually occupied by a column on a route, expressed in miles or kilometres.

Roll On-Roll Off (RORO) - A type of ship/vessel primarily designed for ramp unloading of vehicles and/or cargo. Whereby direct drive on and drive off of by highway tractors, rail cars and other wheeled or tracked vehicles is the main method of loading

Route card - A card setting out the salient features of a move, e.g. route to be followed, speed, density, timings, etc.

Route transport - Air operations flown over established routes between bases that possess adequate facilities and are located outside of the battle zone. In wartime, route transport operations would be established after strategic and tactical deployments have been completed. In peacetime, a large portion of the strategic airlift and tactical air transport capacity of 1 CAD is devoted to route transport operations.

RP - Replenishment Point.

RSOM – Reception, Staging and Onward Movement (NATO) Reception, Staging and Onward Movement (RSOM) is the phase of the deployment process, that transitions units, personnel, equipment and materiel from arrival at Ports Of Debarkation (PODs) to their Final Destination (FD), also Reception Staging Onward Movement and Integration (RSOI) (US).

S

Safe Working Load (SWL) – In sea operations, the maximum load that can be safely applied to a fitting, and normally shown on a label plate adjacent to the fitting. (AAP-6)

Sagging - See trim.

SAR – Search and Rescue.

SCEPC - Senior Civil Emergency Planning Committee (NATO).

Sea Container (sometimes referred to as Containers/ISO Containers, Seacans or SCs) -

While commonly a sea container can be described as a single rigid, non-disposable, dry-cargo box, they can also be ventilated, insulated, refrigerated, or open top, with/without wheels or bogies attached, not less than 20 feet long. In order to maintain the key elements of mobility, flexibility and inter-operability, in the support of deployed operations, the CF Standard, to be adopted wherever possible is as follows:

a standard ISO sea container, constructed of steel is to be utilised, and the following dimensions are to be considered as the norm, length - 20 ft, width - 8 ft; and height 8 ft 6 in.

Sea Lines of Communications (SLOC) - All the water routes that connect an operating military force with one or more bases of operations, and along which supplies and reinforcements move.

Sea Port of Disembarkation (SPOD) - The Sea Port at which the ship/vessel carrying materiel and/or personnel are off-loaded.

Sea Port of Embarkation (SPOE) - The Sea Port at which final preparations for embarkation are completed and through which assigned personnel, materiel, and vehicle loads for ships/vessels are called forward and loaded onto the strategic sea lift.

Self Contained/Sustained - A vehicle, normally a ship/vessel, that is equipped with its own handling equipment (crane/derricks or "gear") for the loading/discharge of sea containers and other cargo. Also applies to a RORO ship/vessel that carries its own ramps.

Senior passenger - The senior passenger, by virtue of rank, on a 1 CAD aircraft. He is not necessarily the chalk commander.

Serial - An element or group of elements within a series that is given a numerical or alphabetical designation for convenience in planning, scheduling and control.

Ship's Gear - The cranes/derricks, rigging, blocks, and other paraphernalia used on board a ship/vessel for hoisting freight.

Shipping Tonnage - See tonnage.

Shoring - Timber used to support in an upward direction.

Short Ton - Measure of weight equalling 2000 pounds.

Shunt - The placing, or removal, of rail cars onto/from a siding.

Shunting neck - A stretch of track utilized for manoeuvring rail cars onto or out of a siding.

Siding - A short track connected to the main line by a switch and used for loading, unloading and bypassing.

Single Slings - See **slings** below.

Sling - A contrivance into which freight is placed to be hoisted into or out of a ship/vessel. Several types are:

1. **bridie** - a combination sling designed for a specific purpose (e.g. lifting hatch covers). Usually a series of wire or fibre rope pieces attached at one end by a common ring with separate eyes or hooks at the other.
2. **combination sling** - two or more single slings combined together by shackles, hooks, rings, or a chain.
3. **endless sling** - made by splicing the ends of a piece of wire or fibre rope together to form a circle.
4. **single sling** - a single length of wire or fibre rope with each end made up with an eye, hook ring or thimble, depending upon its intended use.
5. **tag line** - a line used to steady cargo as it is being lifted or placed;
6. **wire rope clips** - used to make a temporary eye in a wire rope or for joining two pieces of wire together (e.g. a steel clevis).

Sling Load - Single sling load of cargo.

Space available - Remaining load capacity of an aircraft considering the size and weight limitations of the aircraft and the priorities, size and weight of the traffic to be loaded.

special train - Composition of rail cars specially ordered for the sole use of CF movement.

Spotting - The pre-positioning (siting) of a rail car for the purpose of loading or unloading.

Spreaders - Lengths of hardwood, pipe, or steel beams used above a load to be hoisted, to keep the legs of a sling apart so that they do not crush the cargo when hoisted, or a device used for handling sea containers by their corner casings.

Stability - The ability of a ship/vessel to right itself when it rolls to one side or the other.

1. **List** - the inclination of a ship/vessel to one side or the other.
2. **Stiff** - a ship/vessel with too much weight in the lower decks. The ship/vessel may not capsize but it will roll so rapidly and violently that it can cause cargo to shift.
3. **Tender** - a ship/vessel with too much weight in the upper decks. The ship/vessel will have long slow rolls and in extreme cases may capsize.

Staging Area

1. An area located between the mounting area and the objective area through which all or part of the forces pass after mounting, for the purpose of refuelling, regrouping, training, inspection and distribution of troops and materiel.

2. A general locality established for the concentration of troop units and transient personnel between movements over lines of communications.

(AAP-6)

3. When specific to amphibious or airborne operations. A general locality between the mounting area and the objective of an amphibious or airborne operation, through which the expedition or parts thereof pass after mounting, for refuelling, regrouping of ships, and/or exercise, inspection, and redistribution of personnel.

Stake - A piece of timber or metal inserted in the "stake pocket" (see below) on sides or ends of flat rail cars to hold the load in place, extending slightly higher than the top of the load.

Stake pocket - A metal receptacle attached to the sides or ends of flat rail cars to receive the end of the "stake" (see above) used in securing loads.

Staff Function (of Movements) - Planning, scheduling, directing and co-ordinating movement.

STANAG - The NATO term derived from standardization agreement. (AAP-6)

Stanchion - An upright pillar of wood or steel to provide supporting strength.

Starboard - The right side of a ship when facing forward. Marked with a green navigation light at night.

Stem - Either the extreme bow post; or to "stem" bunkers i.e. to fuel a ship/vessel.

Stern - The rear end of a vessel.

Stevedore - A person employed handling cargo for the loading and discharge of ships/vessels.

Stowage - The placing and securing of cargo or containers on board of or in a means of transport or container. (AMovP-3)

Stowage and Capacity Booklet - Booklet with data, tables, diagrams and the like pertaining to a class of ship/vessel.

Stowage (Stow) Plan - A diagrammatic sketch of the ship/vessel showing the location of cargo stowed in the ship/vessel's cargo compartments.

Strategic Air Transport Operations - The carriage of passengers and cargo between theatres by means of scheduled services, special flights, air logistic support or aeromedical evacuation. (AAP-6)

Strategic Command (SC) - A major NATO command, NATO has two Strategic Commands (SCs) SC Europe (SACEUR) & SC Atlantic (SACLANT).

Strategic Mobility - Strategic mobility is the capability to move forces and their associated logistic support quickly and effectively over long distances. This can be between theatres (inter-theatre), between regions (inter-regional), or out-of-area (MC 319/1).

Stripping/de-stuffing - Emptying a sea container of cargo.

Stuffing – The placing of cargo and cargo bracing material (dunnage) if required, in a container. (AMovP-3)

Supervised Route – In road traffic, a roadway over which limited control is exercised by means of traffic control posts, traffic patrols or both. Movement credit is required for its use by a column of vehicles or a vehicle of exceptional size or weight. (AAP-6)

Supported unit - The unit whose personnel and cargo are being carried.

Swell - The motion of the sea produced by a distant or subsided wind, as opposed to waves produced by present and existing wind.

Switching - The local movement of rail cars from one place (normally track or siding) to another.

T

Tackle - Assembly of ropes and blocks. A tackle system may be simple or compound: a simple tackle system has one rope and one or more blocks; a compound tackle system has more than one rope and two or more blocks.

Tactical Air Control Centre (TACC) - The air component operations centre in a joint/combined force, exercising centralized control and overall planning and co-ordination of air operations.

Tactical Air Transport (TAT) - The use of aircraft, in theatre, in direct support of Parachute operations, air landed assault, aerial resupply, tactical aeromedical evacuation or special missions.

Tactical Loading - The loading of troop (personnel) units with their equipment and supplies in the same vessel, ship, aircraft or land vehicles. (AAP-6) The loading conforms to the Task Force Commanders' desired order of arrival in the theatre of operations.

Tactical Mobility - Tactical mobility is the quality or capability to concentrate regional in-place forces up to divisional level against the major local enemy thrust and to counter-concentrate tactical reserves.

Tail Cating - The movement of cargo on or off a RORO ship/vessel, using a fork lift.

Tally - To check cargo.

Tare – The weight of a vehicle without load. (AMovP-3)

Tariff - A published schedule showing the rates, charges, classification, rules, regulations and other provisions applicable to transportation and incidental services.

Task Force (TF) - A group of units and/or elements from more than one command assigned by NDHQ for a specific mission within a theatre and under the operational command of a designated Task Force Commander (TF Comd), also appointed by NDHQ.

Task Force Commander (TF Comd) - An officer appointed by, and responsible to, NDHQ, who exercises operational command of all Task Force operations.

Task Force Movement Officer (TFMO) - A Movement Officer Course trained officer appointed by the Task Force Comd to co-ordinate the planning and execution of the deployment, by all modes, for a Task Force. (The TFMO's responsibilities are at B-BJ-005-404/FP-000 Mov Doc for CF Ops Chap 2, Annex D).

Task Force Movement Table (TFMT) - A task oriented inventory, essentially drawn from the DCDS approved Table of Organization and Equipment (TO&E), of a force arranged in order of priority of arrival in a contingency area. (TFMTs are described at B-BJ-005-404/FP-000 Mov Doc for CF Ops Chap 3, Annex C).

TAV - Technical Assistance Visit.

Terminal(s) - Those military and commercial facilities used for the loading, unloading and in-transit handling of cargo or personnel by various modes of transport.

Theatre of operations (sometimes Area of Operations [AO])- A defined geographical area within which military forces are assigned to operate.

Tie Down - The fastening or securing of a load to its carrier by use of ropes, cables or other means to prevent shifting during transport. Also used (as a noun) to describe the material employed to secure a load. *Also called "lashing".* (AAP-6)

Tomming - Timber used for support in a downward direction.

Tonnage -

1. **dead-weight** - the capacity in long tons of cargo, passengers, fuel, stores, etc, of a ship/vessel. It is the difference between the tonnage of water a ship/vessel displaces when light and when loaded to her marks.
2. **measurement tonnage** - the cubic capacity of cargo expressed in tons and feet (40 cu ft to 1 ton).
3. **shipping tonnage** - this is either weight or measurement, whichever is the greater. Shipping tonnage's can be part weight, part measurement.
4. **gross register tonnage** - the total enclosed space of a ship/vessel in cubic feet (excluding double bottom) divided by 100.
5. **net register tonnage** - the gross tonnage less deductions made for crew space, engine room, fuel, and stores.
6. **displacement tonnage** - the weight of a ship/vessel or the weight of water she displaces.

Topside - Nautical term for the upper or "weather" deck.

Trail officer - A subordinate commander travelling in the rear vehicle of a road column, responsible for dealing with such problems as may occur en route.

Trail Party - The "trail party" is located at the end of a road convoy and usually includes the medical element, repair and recovery personnel, POL vehicles, and the trail officer. In peacetime, this group may be tasked with final policing of the bivouac area and picking up traffic control personnel posted by the advanced party.

Train Conducting Officer (TCO) - Duties and responsibilities for a TCO are in B-GJ-005-404/FP 020, Mov Sp Rail, at Annex K Appx 3. A TCO may be appointed in 2 primary roles:

1. by the Formation/Task Force Commander to act on site for the Task Force Movement officer (TFMO) as part of a Formation/Task Force rail operation; or
2. by a unit's Commanding Officer to assist and be subordinate to the Unit Embarkation Officer (UEO).

Train consist - A listing, by type and number, of the rail cars that constitute a train.

Train density - The number of trains that may operate over a section during a 24-hour period. (AMovP-3)

Transit shed - Structure on a wharf or pier for protecting cargo.

Transport Agency - An organisation responsible for operating a specific mode of transport (MOT) be it civilian or military.

Transportation - Transportation is the means of conveyance to move forces, equipment, personnel, and stocks and includes the requisite materials handling equipment. (MC 319/1).

Transportation agent (TA) - The designated representative of DND in whom is vested the responsibility to commit public funds and effect the authorized movement of personnel and materiel.

Transport Canada (TC) - The body in the Canadian Federal Government that regulates the transportation industry in Canada.

Transverse - At right angles to a ship/vessel's centreline.

Trim - The difference between the draughts/drafts at the bow and the stern of a ship/vessel:

1. **down by the head** - where the bow is lower or deeper in the water than the stern.
2. **draught/draft** - the vertical distance between the lowest part of the ship/vessel (usually the keel) and the surface of the water.
3. **drag** - where the stern is lower or deeper in the water than the bow.
4. **hogging** - where the ship/vessel's handling characteristics are adversely affected by too much weight loaded at the bow and stern of the ship/vessel.
5. **sagging** - where the ship/vessel's handling characteristics are adversely affected by too much weight being loaded in the centre of the ship/vessel.

Turnbuckle - Internally threaded collar, turning on two screws threaded in opposite directions.

Tween deck - See **cargo compartments**.

U

Uncontrolled/unrestricted rail moves - In an uncontrolled or unrestricted move the tie-downs must be able to withstand an 8 mph impact and "humping" (see above) is permitted. Some very heavy vehicles like Main Battle Tanks (MBTs) cannot be moved by an uncontrolled move. Within Canada uncontrolled moves are not normally permitted. If there are particular circumstances that might require the use of an "uncontrolled move" authority is to be obtained from J4 Mov through the chain of command. It is essential to confirm that a move is controlled/uncontrolled prior to commencing rail operations, especially when operating outside Canada.

Unit Embarkation Officer (UEO) - An Officer, Warrant Officer, or Senior NCO appointed by the Commanding Officer to be responsible for unit movement including; planning, training, organizing and documenting the unit and for liaising with the Movement Staff responsible for an air deployment. (The UEO's responsibilities are at B-GJ-005-404/FP-000, Mov Doc for CF Ops, Chap 2, Annex F).

Unit Load

1. A load consisting of items or packages held together by one or more means and shaped or fitted for handling, transporting, stacking and storing as a unit.
2. Pallets and pre-packed unit to be put into a loading unit.
3. Cargo packed or grouped into discreet units which usually conform to pallet dimensions.-

(AMovP-3)

UMST - Unit Movement Staff Table.

Users - The forces being moved.

V/W/X/Y/Z

Vessel Stowage Factor - Figure which represents the number of cubic feet or metres of space available in a ship/vessel for each long ton of cargo that the ship/vessel is designed to carry.

Waybill/Straight Bill of Lading (WSBL) - A document prepared by a transportation company (commercial carrier) at the point of origin of a shipment, showing point of origin, destination, route, consignor, consignee, description and weight of shipment and amount charged for transportation service. It is either forwarded with the shipment, or direct by mail, to the agent at the transfer point or waybill destination.

Weather deck - See **cargo compartments**.

Wharf - A structure providing a horizontal working space, generally with water beneath it and supported on piles or open framing, alongside which ships/vessels may berth for the purpose of loading or discharging.

Wedge - A type of platform used to facilitate aerial delivery of stores simultaneously with personnel.

Winch - Machine used for loading and discharging cargo or for hauling on lines.

XP - Exchange Point.

